Illinois Environmental Protection Agency
Bureau of Land

Tiered Approach to Corrective Action Objectives (TACO) Fact Sheet 1: Introduction

What is TACO?

TACO is the Illinois EPA's method for developing remediation objectives for contaminated soil and groundwater. These remediation objectives protect human health and take into account site conditions and land use. Remediation objectives generated by TACO are risk-based and site-specific.

How can TACO help me?

Previously, the Illinois EPA's Bureau of Land (BOL) used conservative "one-size-fits-all" remediation objectives at nearly every site. Baseline remediation objectives still exist, but other options also protective of human health have been added.

TACO provides flexibility to site owners and operators in developing site-specific remediation objectives. It's now the site owners and operators who decide how best to manage their sites within TACO guidelines. However, this determination of site-specific remediation objectives is subject to Illinois EPA review and approval.

By exercising these new choices, site owners and operators may reduce remediation costs, return more sites to productive use, hasten property redevelopment, and still fully comply with environmental laws and regulations.

Under TACO, a site may qualify to receive a No Further Remediation Letter acknowledging the site owner or operator has satisfied the applicable BOL program requirements *(See Fact Sheet 3)*.

Does TACO apply to my site?

Yes, you will use TACO if your site is regulated by one of the following BOL programs:

- Leaking Underground Storage Tank (LUST) Program
- Site Remediation Program
- RCRA Closure and Corrective Action

Are there any limitations to TACO?

TACO works in cooperation with the existing laws and regulations. If you participate in one of the BOL programs listed above, TACO can only be used in conjunction with that program's requirements.

Because of the wide range of programs in which TACO can be applied, TACO itself does not provide procedures for characterizing a site and the potential contamination at the site. Such characterization is a critical step in the overall TACO process, but is program specific.

Consistent with the regulations of other programs, and as approved by the Illinois EPA, TACO may also be used to develop remediation objectives to protect surface waters, sediments or ecological concerns.

126-13

Any TACO procedure that delays an owner's or operator's response during an environmental emergency cannot be used.

TACO does not consider any person's liability, culpability, or legal, moral or ethical responsibility to address a release of a regulated substance into the environment.

Can I use TACO to update my existing remediation objectives?

Yes.

How does TACO work?

TACO offers site owners and operators the following choices:

- Exclusion of exposure routes
- Use of area background concentrations as screening tools or remediation objectives
- Three tiers for selecting remediation objectives.

Selection of an option or combination of options to use in developing remediation objectives depends on the site-specific conditions and the site owner's or operator's remediation goals.

Exposure Route Evaluations

Human exposure route(s) can be excluded from further consideration provided the requirements in Subpart C of TACO are met. The human exposure routes are: inhalation, soil ingestion and groundwater ingestion (including migration to groundwater). Exclusion of an exposure route will require an institutional control *(See Fact Sheet 4 & Fact Sheet 8)*.

Determining Area Background

When contaminant concentrations do not exceed background concentrations for soil and/or groundwater, evaluation under any of the other tiers may not be required. The procedures for determining area background concentrations are contained in Subpart D of TACO *(See Fact Sheet 9)*.

Tier 1

In Tier 1, the site owner or operator compares site sample analytical results to baseline remediation objectives, contained in "look-up" tables. These objectives are based on simple, conservative models *(See Fact Sheet 6)*.

To complete a Tier 1 evaluation, the site owner or operator must know:

- The extent and concentrations of the contaminants of concern,
- The groundwater classification as defined in Illinois Administrative Code, Part 620, and
- The intended land use at the site (either residential or industrial/commercial).

If remediation objectives are based on an industrial/commercial land use, then an institutional control prohibiting the property from residential use will be imposed.

Tier 2

A Tier 2 evaluation is not required for those contaminants of concern that meet the Tier 1 remediation objectives *(See Fact Sheet 7 & Fact Sheet 10)*.

A Tier 2 evaluation is also not required for exposure routes excluded under Subpart C of

TACO.

Under Tier 2, a site owner or operator considers:

- Data previously gathered for Tier 1,
- The physical and chemical properties of the contaminants,
- The site-specific soil and groundwater parameters (e.g., soil type, soil organic carbon content, hydraulic conductivity), and
- The application of institutional controls and engineered barriers.

The additional Tier 2 information can allow for calculation of less stringent but equivalently protective remediation objectives. These calculations are derived from simple analytical models and standardized equations.

Tier 3

Site owners and operators can use Tier 3 to address those situations which they choose not to handle or cannot handle under the first two tiers. These situations can range from simple sites where physical barriers limit remediation, to complex sites where full-scale risk assessments or alternative modeling are applied. A Tier 3 review and evaluation draws on expertise beyond the immediate BOL project manager.

Do I have to use all three tiers?

No. The tier(s) you select to develop remediation objectives will depend on multiple factors, including the actual amount and extent of contamination present, the cost of remediating that contamination, and the cost of obtaining the information necessary to conduct a Tier 2 or Tier 3 analysis. The tiers do not need to be used in sequence.

What happens next?

After remediation objectives are established using TACO procedures, a site owner or operator may:

- Reduce contaminant concentrations to meet established objectives through active remediation (e.g., dig and haul, or treatment in place),
- Restrict exposure to contaminated soil or groundwater or both by using engineered barriers or institutional controls,
- Take no action, if contaminant concentrations present at the site do not exceed remediation objectives, or
- Use any combination of the options above.

UNITED STATES ENVIRONMENTAL PROTECTIC. AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

File

REPLY TO THE ATTENTION OF:

DW-8J

October 10, 2006

Mr. David R. Guier
Lyondell Equistar
One Houston Center, Suite 700
1221 McKinney Street
Houston, TX 77010

Re: Equistar, Tuscola, IL
ILD 005 078 126

Dear David,

This letter is in regards to RCRA corrective action activities at the Equistar facility in Tuscola, Illinois (U.S. EPA ID: ILD 005 078 126). Millenium Petrochemicals (a previous owner of this facility) entered into a voluntary agreement with the U.S. EPA in September 2000 to investigate, stabilize, and remediate releases of hazardous wastes or hazardous constituents at this facility.

A total of three solid waste management units and eleven areas of concern are being addressed under this agreement:

SWMU 1	Fly Ash/Acid Pit Landfills
SWMU 2	Active WWTP/NPDES Treatment Lagoons
SWMU 3	Former Wastewater Treatment Lagoons/MW03 Area
AOC 1	Former Extraction Process Area (EX Area)
AOC 2	Former Fractionation Process Area (FP Area)
AOC 3	Former Ethylene Production Area (ET Area)
AOC 4	Former Polyethylene Production Area (PE Area)
AOC 5	Former Agriculture Chemical Area (AG Area)
AOC 6	Former Fire Training Area (FT Area)
AOC 7	Former Polymer Pilot Area (PP Area)
AOC 8	Chemical Loading Area (CL Area)
AOC 9	Former Ethyl Chloride Production Area (EC Area)
AOC 10	Former Tubular Water Reactor Area (TWR Area)
AOC 11	North Uploading Area (NU Area)

A substantial amount of investigative work has been completed to date and a demonstration has been made that human exposures are under control at this facility (CA725 Environmental Indicator). You reiterated Equistar's commitment to fulfilling the requirements of the agreement including setting a goal that a demonstration that the migration of any groundwater at the facility is under control (CA750 Environmental Indicator). You requested that the voluntary agreement

be modified such that Illinois EPA would oversee the corrective action efforts required in the agreement.

The subject voluntary agreement indicates that Illinois EPA's Tiered Approach to Corrective Action Objectives (TACO) may be used in developing remediation objectives for this facility. However, there are certain aspects of TACO that can only be implemented by Illinois EPA. In addition, several of the solid waste management units of concern at this facility are regulated in some manner by Illinois EPA. You proposed that the corrective action required by this agreement be completed by:

1. Continuing to address the closed landfill and gyupsum piles (SWMU 1) in accordance with: (a) the permit issued by Illinois EPA and any future approved modifications;

2. Addressing the active wastewater treatment lagoons (SWMU 2) under Illinois EPA's oversight and meeting applicable regulations;

3. Addressing the eleven areas of concern and the closed wastewater lagoons (SWMU 3) under Illinois EPA's Site Remediation Program (this also includes the groundwater contamination detected at MW03).

Given the fact that Illinois EPA is already closely tied to the corrective action efforts required by the agreement, it is acceptable to U.S. EPA to allow Illinois EPA to provide oversight of these efforts. U.S. EPA has been in contact with Illinois EPA and they are agreeable to assuming this role. As the agreement with the U.S. EPA is voluntary, there is no need to modify the original agreement. This letter will serve as notice and acceptance of this change.

All information you submit to Illinois EPA regarding the corrective action activities required by this agreement should be submitted to:

Stephen F. Nightingale., Manager
Permit Section, Bureau of Land
Illinois EPA
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

U.S. EPA will defer its future decision-making responsibilities under this agreement to Illinois EPA, except for the CA750 Demonstration submitted in September 2005 which it is currently reviewing. Please note that we will be providing you a response to this submittal in the near future. To assure U.S. EPA that Equistar is making progress with Illinois EPA in accordance with the revisions described in this letter, it is respectfully requested that you provide U.S. EPA with a copy of all information submitted to Illinois EPA.

Should you have any questions, please contact Peter Ramanauskas, of my staff at (312) 886-7890.

Sincerely,

Hak Cho, Chief
RCRA Corrective Action Section
U.S. EPA Region 5

cc: Jim Moore, IEPA
Jeff Turner, IEPA
Peter Ramanauskas, U.S. EPA

LYONDELL EQUISTAR

One Houston Center
1221 McKinney
Suite 1600
P.O. Box 2583
Houston, TX 77252-2583
Telephone: 713.652.7200

May 17, 2005

Mr. Peter Ramanauskas
Environmental Scientist
Waste, Pesticides, & Toxics Division
U.S. Environmental Protection Agency Region 5
77 West Jackson Boulevard (DW-8J)
Chicago, IL 60604-3590

Subject: Tuscola (IL) Plant
ILD005078126

Dear Peter:
Equistar Chemicals (Equistar) appreciates the United States Environmental Protection Agency (USEPA) meeting with us on April 15, 2005 to discuss the path forward for the RCRA corrective action program at the subject facility. As background, in September, 2000 USEPA and Millennium Petrochemicals signed a Voluntary Agreement to investigate, and as necessary to stabilize and remediate releases of hazardous wastes or hazardous constituents at the subject facility. On November 30, 2004, Lyondell Chemical acquired Millennium and thus inherited the existing Voluntary Agreement. Furthermore, as a point of clarification, in must be noted that the Tuscola Plant has never had a Part B permit, and never submitted a Part B permit application in the past

The Voluntary Agreement established Millenium's and USEPA's commitment to work together at the subject facility to: (1) achieve USEPA's GPRA Environmental Indicators (EIs) for Human Exposures Under Control (CA725) and Migration of Contaminated Groundwater Under Control (CA750); and (2) conduct investigation and corrective measures as necessary to address the aforementioned releases. A total of three solid waste management units and eleven areas of concern have been identified and are being addressed under this agreement. A table identifying these units and a drawing showing the location of these units within the facility is attached.

USEPA has already determined that the Tuscola Plant has achieved USEPA's EI for Current Human Exposures Under Control (CA725). The Voluntary Agreement specified the use of the RCRA Facility Investigation process and also allowed the use of the Illinois Environmental Protection Agency's (Illinois EPA) Tier Approach to Corrective Action Objectives (TACO) regulations during the required investigation and remediation efforts.

After reviewing the Voluntary Agreement, the various submittals, correspondence between the parties, and discussions with Illinois EPA, Equistar is requesting to switch

the eleven Areas of Concern and the closed wastewater lagoons from the current USEPA/Millennium Voluntary Agreement into Illinois EPA's Site Remediation Program. The reasons for this are summarized below.

- Equistar believes a Migration of Contaminated Groundwater Under Control EI determination and eventual final corrective measures will need to include, at a minimum, institutional controls. Specifically, Illinois Environmental Land Use Controls (ELUCs) probably will be needed to use TACO Tier 2 groundwater remediation objectives, to restrict the actual and potential use of affected groundwater, and/or to restrict land use to commercial/industrial.
- TACO regulations are not "standalone" regulations and are not enforceable. TACO regulations must be implemented by another enforceable State of Illinois regulations (e.g., Site Remediation Program (35 IAC Part 740), LUST (35 IAC Part 732), and RCRA (35 IAC Parts 724/725).
- Illinois EPA has the regulatory and legislative authority to implement the TACO regulations. USEPA does not have direct authority and Equistar does not want a permit for site.
- The Tuscola Plant has separate ongoing post closure requirements with the Illinois EPA for its closed landfills and gypsum piles. Putting the entire site under Illinois EPA's direction simplifies the regulatory oversight and avoids any potential conflicts with respect to soil or groundwater activities.
- The USEPA and the Illinois EPA have entered into a July 1, 1997 Memorandum of Understanding through which the USEPA concurs that further response actions will not be required by the USEPA at sites subject to RCRA corrective action which have received a No Further Action Letter or regulatory closure from Illinois EPA.

Equistar is also committed to installing additional groundwater wells, monitoring the wells, and depending upon the results, preparing a contingency plan for any exceedances of the Illinois groundwater standards at the active wastewater treatment ponds. Equistar believes that making this switch will allow us to achieve USEPA's CA750 EI in the most expeditious manner. We will be developing workplan in the very near future for this investigation effort. It is our goal to demonstrate the migration of contaminated groundwater is under control at this site by September 30, 2005.

To summarize all that has been discussed above, Equistar would like to respectfully request that its RCRA Corrective Action Voluntary Agreement with USEPA for the subject facility be modified as follows:

1. Equistar has established a goal that it will obtain sufficient information to develop and submit, by September 30, 2005, a demonstration that the migration of contaminated groundwater is under control at the facility;
2. Equistar would like to continue addressing the closed landfill and gypsum piles in accordance with: (1) the permit issued by Illinois EPA and any future approved modifications; and (2) the applicable Illinois regulations.

3. Equistar would like to investigate/remediate the eleven areas of concern and the closed wastewater lagoons under Illinois EPA's Site Remediation Program.

4. Equistar would like to address the active wastewater treatment lagoons under Illinois EPA's oversight and meet the applicable regulations.

Equistar understands that this request is a deviation from the concepts set forth in the existing Voluntary Agreement. However, Equistar believes that this proposal is a better fit for the facility's current status and still achieve the general goals of the voluntary agreement—initial achievement of the two environmental indicators followed by proper remediation of any releases of hazardous waste or hazardous constituents at the facility.

Equistar has discussed this proposed modification with the Permit Section of Illinois EPA's Bureau of Land (the section of Illinois EPA responsible for RCRA corrective action and who would be working with us the most) and they seem to feel this proposal has merit. If needed, Equistar would like to further discuss this proposal with you and possibly with Illinois EPA.

Please contact me at (713) 309-7794 if you have any questions, or need any additional information.

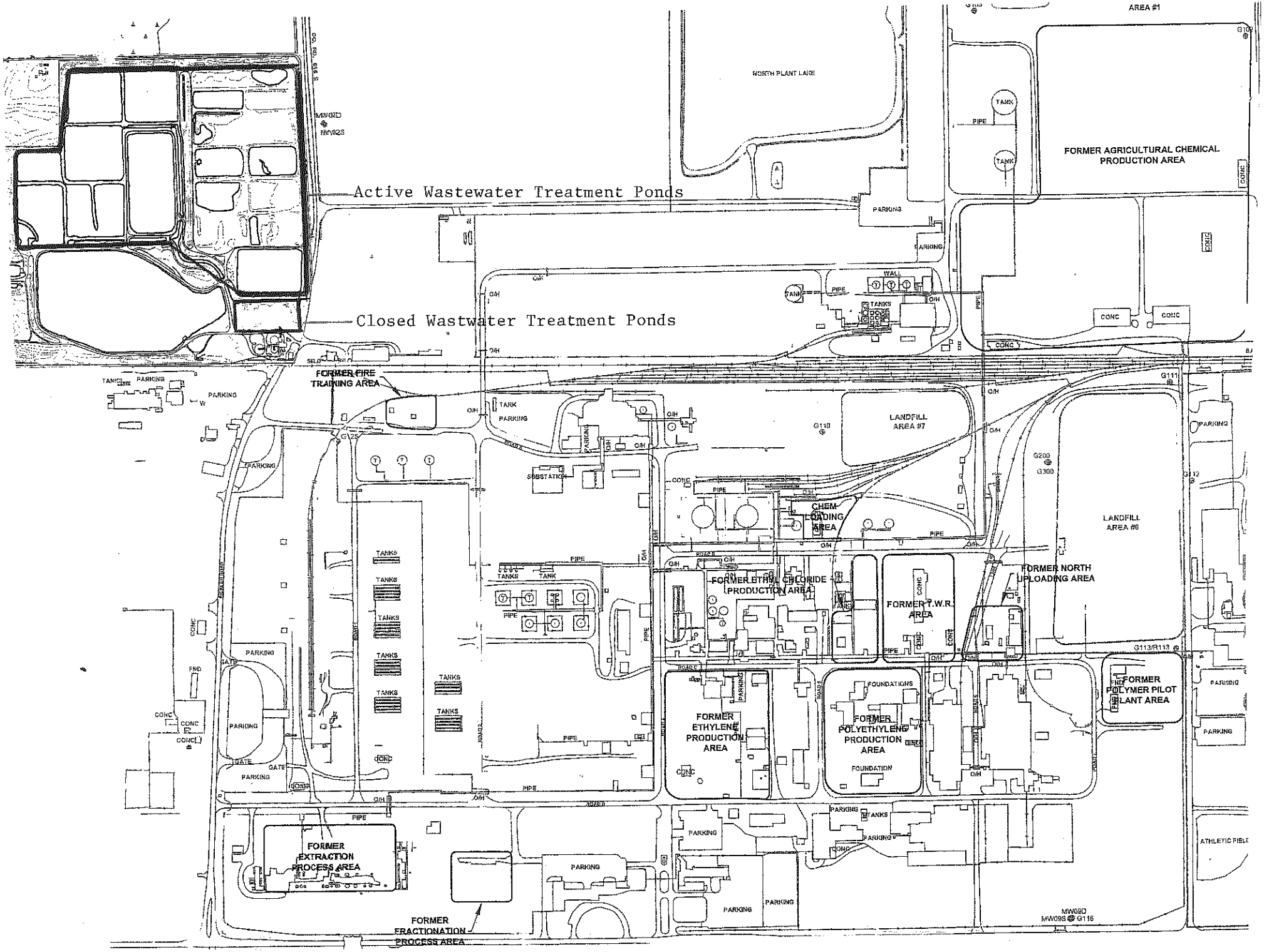
Sincerely,

David Guier

David Guier
Retained Liabilities & Remediation Program Manager

Attachments: List of SWMUs and AOCs
Site Layout Map

Cc: Jim Moore-IEPA
Debbie Kryak
Steven Cook
Jason Pontnack
Ron Hutchens/Barbara Coughlin-Environ
Harry Walton


Active Wastewater Treatment Ponds
Closed Wastwater Treatment Ponds
AREA #1
NORTH PLANT LAKE
FORMER AGRICULTURAL CHEMICAL PRODUCTION AREA
FORMER FIRE TRAINING AREA
LANDFILL AREA #7
LANDFILL AREA #6
CHEM LOADING AREA
FORMER ETHYL CHLORIDE PRODUCTION AREA
FORMER T.W.R. AREA
FORMER NORTH LOADING AREA
FORMER ETHYLENE PRODUCTION AREA
FORMER POLYETHYLENE PRODUCTION AREA
FORMER POLYMER PILOT PLANT AREA
FORMER EXTRACTION PROCESS AREA
FORMER FRACTIONATION PROCESS AREA
ATHLETIC FIELD
SUBSTATION
PARKING
TANKS
PIPE
CONC
FOUNDATIONS
FOUNDATION
MW09D
MW09S
G116

Peter Ramanauskas/R5/USEPA/US
05/10/2005 11:21 AM

To

Subject Fw: equistar/tuscola

Hi Jim,

Hak forwarded me the letter. It looks fine. With respect to the need to modify the Voluntary Agreement with USEPA- it seems that the only real change is the date of the CA750. As long as the mechanism/agreement that Equistar will have with IEPA includes the elements covered in the letter, we probably don't need to change anything more in the Voluntary Agreement. It's a non-enforceable document anyway.

Thanks very much for working with the company on the letter.

Please let us know if you have any other questions.

Peter

----- Forwarded by Peter Ramanauskas/R5/USEPA/US on 05/10/2005 11:10 AM -----

Hak Cho/R5/USEPA/US
05/10/2005 09:50 AM

To

Subject Fw: equistar/tuscola

Peter - See e-mail below and let me know your thought. Thanks, Hak

----- Forwarded by Hak Cho/R5/USEPA/US on 05/10/2005 09:47 AM -----

Jim Moore <Jim.Moore@epa.state.il.us>
05/02/2005 02:23 PM

To

Subject equistar/tuscola

We had a meeting with Equistar last week to discuss the Equistar facility in Tuscola. As a result of this meeting, I worked with Equistar to develop a draft letter to USEPA describing their proposed plan of action. I wanted to run it by you to see if you had any comments.

I think that Equistar is committed to working at this site and properly remediating it. Also, they do understand the importance of an affirmative CA750. Are you guys counting on an affirmative CA750 for this facility to meet the 2005 goals?
[attachment "equistar letter_edits.doc" deleted by Peter Ramanauskas/R5/USEPA/US]

Agenda
Meeting with Millennium Petrochemicals
Equistar Facility - Tuscola, IL
April 15, 2005

1) Introductions

2) Conceptual Site Model (Environ) – Provide a brief overview of site contamination and issues.

3) Discussion of Key Issues:

   - Groundwater Contamination/Need for Sampling at former Process Areas / CA750
   - Remedial Options at Closed WWTP Lagoons/Groundwater
   - QAPP

4) Review of January 7, 2005 Comments

5) Other

6) Next Steps

Not covered See Mtg notes.

Soil
OK w/areas of excav.
Want to ensure all Tier II numbers calculated for ~~soil~~ all soil constituents.

GW objectives
(1) See if problem – Temp Wells.
(2) If organics detected, bound ~~vertically~~ to find edge.
(3) Monitor to ensure no migration (CA750) and determine if remedial actions necessary under TACO or if pathway can be excluded.

combine? → Soil Excav – IM
GW Investig – RFI GW
Closed Lagoons – CMS MW03 Area Lagoons

Closed Lagoons – Hazwaste Levels
GW – Will require monitoring for CA750; if no remedial action. No remedial action if ~~GW is not exceeded~~ pathway excluded.
– No closure documentation – agency check?
– Most probably Hazwaste levels in contact w/ liner
– Unlined – No Hydraulic conductivity data from underneath.
– Show me plant figures showing sewers.

Jim Moore
<Jim.Moore@epa.state.il.us>
09/10/04 02:41 PM

To

Subject Re: TACO Question

yes, you are correct

>>> <Ramanauskas.Peter@epamail.epa.gov> 9/7/2004 1:12:20 PM >>>

Thank you, Jim, that helps clarify the requirements for soil attenuation
capacity. Just so I'm clear on the soil saturation limits conditions, similarly, if we have available BTEX concentrations, they can be checked
versus Appendix A, Table A to meet the conditions of 742.305(b) and TICs
are not considered?

Jim Moore

<Jim.Moore@epa.s

tate.il.us>

To

09/07/04 12:05 PM

To

Peter Ramanauskas/R5/USEPA/US@EPA

cc

bcc

Fax to

Subject

Re: TACO Question

742.215 contains the requirements for ensuring the soil attenuation capapcity is not exceeded. This regulation contains two options: (1) the sum of the contaminants of concern must be less than the organic carbon fraction; OR (2) the amount of total petroleum hydrocarbon is bleow the organic carbon content. Note that it is OR--if you have analyses for the individual contaminants of concern, then you do not have to worry about tentatively identified compounds.

>>> <Ramanauskas.Peter@epamail.epa.gov> 8/31/2004 2:11:09 PM >>>

Hi Jim,

Hope things have been going well for you. I have a couple of questions related to TACO that have come to mind as I review the latest submittal
from Equistar in Tuscola.

I understand that of the minimum requirements for a pathway exclusion demonstration, the soil attenuation capacity and soil saturation limits
cannot be exceeded for organics. The facility has identified various Tentatively Identified Compounds (TIC) in their 8260 scans of soil at the facility. These seem to be petroleum hydrocarbons from their old production areas and some are labelled "unknown hydrocarbon" or "unknown". In order to meet TACO requirements for showing soil attenuation capacity is not exceeded, they can total all organics detected via 8260/8270(PAH) per borehole (including the TICs and "unknowns") and compare them to the default soil attenuation capacities
(6000 ppm/2000 ppm), correct?

How could they go about showing that the soil saturation limits are not
exceeded for these TIC unknowns? Is there some way that TACO addresses petroleum hydrocarbon issues (e.g., using BTEX/PAHs as indicator compounds for determinations)?

Jim Moore
<Jim.Moore@epa.state.il.us>

09/07/04 12:05 PM

To Peter Ramanauskas/R5/USEPA/US@EPA
cc
bcc

Subject Re: TACO Question

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>>> <Ramanauskas.Peter@epamail.epa.gov> 8/31/2004 2:11:09 PM >>>

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How could they go about showing that the soil saturation limits are not
exceeded for these TIC unknowns? Is there some way that TACO addresses petroleum hydrocarbon issues (e.g., using BTEX/PAHs as indicator compounds for determinations)?

Thanks for any insights you can provide!
Peter

ENVIRON

June 14, 2004

Mr. Peter R. Ramanauskas
United States Environmental Protection Agency
77 West Jackson Boulevard
Mail Code: DW-8J
Chicago, IL 60604-3507

Re: Quarterly Sampling Results
MW03S Area Investigation
ILD005078126
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Dear Mr. Ramanauskas:

The monitoring wells MW03S, MW10, and MW12 through MW16 were sampled on May 14, 2004 and May 17, 2004 pursuant to the USEPA-approved plan set forth in Millennium's letter report to the Agency dated July 29, 2003. Detections of volatile organic compounds (VOCs) are presented in the attached table. Laboratory data reports can be provided upon request.

A report providing conclusions and recommendations will be submitted separately.

Please contact me or Ron Hutchens with any questions regarding the enclosed data.

Sincerely,

ENVIRON International Corporation

Barbara R. Coughlin, Ph.D.
Senior Manager

Attachment

BRC:rms
R:\Client Project Files\Millennium_Tuscola 21-12080A\MW03S Data\May 2004 MW03 Data\Ramanauskas_Ltr_061104.doc

cc: Mr. Michael Bramnick – Millennium Chemicals, Inc.
Mr. John Watson – Gardner Carton & Douglas
Mr. Jason Pontnack – Equistar Chemicals, L. P.
Mr. David Guier – Lyondell Chemical Company
Mr. Jeff Turner – Illinois EPA, Champaign
Tuscola Public Library

TABLE 1
VOCs Detected in MW03S Series Wells
2003 - 2004 Quarterly Groundwater Sampling Events

ILD 005078126 -- Douglas County -- 041808002
Millennium Petrochemicals, Inc. / Tuscola, Illinois

COMPOUNDS	Class II GROs	SAMPLE LOCATION AND SAMPLE DATE								
		MW03S					MW10			
		8/18/2003	11/5/2003	2/26/2004	5/14/2004	5/14/2004 Duplicate	8/18/2003	11/5/2003	2/26/2004	5/14/2004
Acetone	0.7	0.025 U	0.025 U	0.250 U	0.31 U	0.31 U	0.025 U	0.025 U	0.0015 J	0.0025 U
***Benzene** *	0.025	***8.1***	***1.500***	***1.800***	***1.600***	***1.900***	0.0004 J	0.0006 U	0.0005 U	0.0005 U
Bromodichloromethane *	0.0002	0.001 U	0.001 U	0.050 U	0.063 U	0.063 U	0.001 U	0.001 U	0.0005 U	0.0005 U
2-Butanone	NA	0.025 U	0.25 U	0.025 U	0.31 U	0.31 U	0.025 U	0.025 U	0.0025 U	0.0025 U
***Chloroform** *	0.001	0.001 U	0.001 U	0.050 U	0.063 U	0.063 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Chloromethane	NA	0.001 U	0.001 U	0.050 U	0.063 U	0.063 U	0.001 U	0.001 U	0.0005 U	0.0005 U
1,1-Dichloroethane	3.5	0.009	0.005	0.050 U	0.063 U	0.063 U	0.001 U	0.001 U	0.0005 U	0.0005 U
1,1-Dichloroethylene*	0.035	0.0067	0.001 U	0.050 U	0.063 U	0.063 U	0.001 U	0.001 U	0.0005 U	0.0005 U
cis-1,2-Dichloroethylene	0.2	***2.9***	***0.280***	***0.240***	0.130	0.140	0.001 U	0.001 U	0.0005 U	0.0005 U
trans-1,2-Dichloroethylene	0.5	0.01	0.0034	0.050 U	0.063 U	0.063 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Ethylbenzene	1.0	0.77	0.001 U	0.050 U	0.063 U	0.063 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Methylene Chloride*	0.05	0.005 U	0.005 U	0.050 U	0.063 U	0.063 U	0.005 U	0.005 U	0.0005 U	0.0005 U
Styrene	0.5	0.063	0.063	0.014 J	0.063 U	0.063 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Tetrachloroethylene*	0.025	0.0007 U	0.0007 U	0.050 U	0.063 U	0.063 U	0.0007 U	0.0007 U	0.0005 U	0.0005 U
Toluene	2.5	0.49	0.015	0.027 J	0.063 U	0.063 U	0.001 U	0.001 U	0.00013 J	0.0005 U
Trichloroethylene*	0.025	0.001 U	0.001 U	0.050 U	0.063 U	0.063 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Vinyl Chloride	0.01	***0.48***	***0.150***	***0.200***	***0.130***	***0.180***	0.001 U	0.001 U	0.0005 U	0.0005 U
Xylenes, Total	10.0	0.17	0.027	0.026 J	0.063 U	0.063 U	0.003 U	0.003 U	0.0005 U	0.0005 U

NOTES:

Results are in milligrams per liter (mg/L).
GRO = Groundwater Remediation Objective (35 IAC Part 742 TACO regulations)
NA = No Applicable TACO GRO
Bold/underlined values exceed Class II GROs.
J = Detected below the reporting limit.
B = Analyte detected in the blank.
U = Not detected at the reporting limit.
D = Diluted analysis.
E = Estimated value. Exceeded the upper level of the calibration range.
* Reporting limit may be at or above Class II GRO; compound not necessarily above the GRO.
** = Lab reported diluted and undiluted analysis results. The highest positive result or the lowest detection limit are reported.
Data prior to the 2004 data were provided by Clayton Group Services, Inc.

TABLE 1
VOCs Detected in MW03S Series Wells
2003 - 2004 Quarterly Groundwater Sampling Events

ILD 005078126 -- Douglas County -- 041808002
Millennium Petrochemicals, Inc. / Tuscola, Illinois

COMPOUNDS	Class II GROs	SAMPLE LOCATION AND SAMPLE DATE								
		MW12				MW13				
		8/18/2003	11/5/2003	2/26/2004	5/14/2004	8/18/2003	11/5/2003	2/26/2004	5/17/2004	5/17/2004** Duplicate
Acetone	0.7	0.0098 J	0.025 U	0.002 J	0.0025 U	0.024 J	0.025 U	0.210 U	0.130 U	0.0025 U
***Benzene** *	0.025	0.0006 U	0.0006 U	0.0005 U	0.0005 U	0.0093	0.007	0.042 U	0.025 D	0.0240
Bromodichloromethane *	0.0002	0.001 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.042 U	0.025 U	0.0005 U
2-Butanone	NA	0.025 U	0.025 U	0.0025 U	0.0025 U	0.025 U	0.025 U	0.210 U	0.13 U	0.0025 U
***Chloroform** *	0.001	0.00067 J	0.001 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.042 U	0.025 U	0.0005 U
Chloromethane	NA	0.001 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.042 U	0.025 U	0.0005 U
1,1-Dichloroethane	3.5	0.001 U	0.001 U	0.0005 U	0.0005 U	0.0055	0.0039	0.042 U	0.025 U	0.0055
1,1-Dichloroethylene*	0.035	0.001 J	0.001 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.042 U	0.025 U	0.00098
cis-1,2-Dichloroethylene	0.2	0.001 U	0.001 U	0.0005 U	0.0005 U	***0.67***	***0.410***	***1.000***	***0.680*** D	***0.690*** D
trans-1,2-Dichloroethylene	0.5	0.001 U	0.001 U	0.0005 U	0.0005 U	0.008	0.0073	0.013 J	0.025 U	0.0089
Ethylbenzene	1.0	0.001 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.042 U	0.025 U	0.0005 U
Methylene Chloride*	0.05	0.005 U	0.005 U	0.00018 J	0.0005 U	0.005 U	0.005 U	0.042 U	0.025 U	0.0005 U
Styrene	0.5	0.001 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.042 U	0.025 U	0.0005 U
Tetrachloroethylene*	0.025	0.0007 U	0.0007 U	0.0005 U	0.0005 U	0.0007 U	0.0007 U	0.042 U	0.025 U	0.0005 U
Toluene	2.5	0.001 U	0.001 U	0.0001 J	0.0005 U	0.00021	0.001 U	0.042 U	0.025 U	0.00052
Trichloroethylene*	0.025	0.001 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.042 U	0.025 U	0.0005 U
Vinyl Chloride	0.01	0.001 U	0.001 U	0.0005 U	0.0005 U	***0.11***	***0.071***	***0.190***	***0.150*** D	***0.140*** D
Xylenes, Total	10.0	0.003 U	0.003 U	0.0005 U	0.0005 U	0.003 U	0.003 U	0.042 U	0.025 U	0.0005 U

NOTES:

Results are in milligrams per liter (mg/L).
GRO = Groundwater Remediation Objective (35 IAC Part 742 TACO regulations)
NA = No Applicable TACO GRO
Bold/underlined values exceed Class II GROs.
J = Detected below the reporting limit.
B = Analyte detected in the blank.
U = Not detected at the reporting limit.
D = Diluted analysis.
E = Estimated value. Exceeded the upper level of the calibration range.
* Reporting limit may be at or above Class II GRO; compound not necessarily above the GRO.
** = Lab reported diluted and undiluted analysis results. The highest positive result or the lowest detection limit are reported.
Data prior to the 2004 data were provided by Clayton Group Services, Inc.

TABLE 1
VOCs Detected in MW03S Series Wells
2003 - 2004 Quarterly Groundwater Sampling Events

ILD 005078126 -- Douglas County -- 041808002
Millennium Petrochemicals, Inc. / Tuscola, Illinois

COMPOUNDS	Class II GROs	SAMPLE LOCATION AND SAMPLE DATE								
		MW14				MW15				
		8/18/2003	11/5/2003	2/26/2004	5/14/2004**	8/18/2003	11/5/2003	2/26/2004	2/26/2004 Duplicate	5/14/2004
Acetone	0.7	0.024 J	0.025 U	0.340 JB	0.0066 B	0.025 U	0.025 U	0.003	0.0031	0.0025 U
***Benzene** *	0.025	***0.27***	***1.900***	***3.700***	***2.700*** D	0.0006 U	0.0006 U	0.0005 U	0.0005 U	0.0005 U
Bromodichloromethane *	0.0002	0.001 U	0.001 U	0.130 U	0.0005 U	0.001 U	0.001 U	0.0005 U	0.0005 U	0.0005 U
2-Butanone	NA	0.025 U	0.025 U	0.200 J	0.0025 U	0.025 U	0.025 U	0.0025 U	0.0025 U	0.0025 U
***Chloroform** *	0.001	0.001 U	0.001 U	0.130 U	0.0005 U	***0.0012***	0.001 U	0.0005 U	0.0005 U	0.0005 U
Chloromethane	NA	0.001 U	0.001 U	0.130 U	0.0005 U	0.001 U	0.001 U	0.0005 U	0.0005 U	0.0005 U
1,1-Dichloroethane	3.5	0.0058	0.0082	0.130 U	0.0071	0.001 U	0.001 U	0.00035 J	0.00038 J	0.0005 U
1,1-Dichloroethylene*	0.035	0.002	0.0033	0.130 U	0.0046	0.001 U	0.001 U	0.0005 U	0.0005 U	0.0005 U
cis-1,2-Dichloroethylene	0.2	***1.3***	***1.800***	***3.100***	***2.000*** D	0.0046	0.012	0.0062	0.0065	0.0051
trans-1,2-Dichloroethylene	0.5	0.0098	0.019	0.130 U	0.027 E	0.001 U	0.001 U	0.0005 U	0.0005 U	0.0005 U
Ethylbenzene	1.0	0.00019 J	0.057	0.069 J	0.05 E	0.001 U	0.001 U	0.0005 U	0.0005 U	0.0005 U
Methylene Chloride*	0.05	0.005 U	0.005 U	0.130 U	0.0005 U	0.005 U	0.005 U	0.00012 J	0.00013 J	0.0005 U
Styrene	0.5	0.001 U	0.001 U	0.130 U	0.0005 U	0.001 U	0.001 U	0.0005 U	0.0005 U	0.0005 U
Tetrachloroethylene*	0.025	0.0007 U	0.0007 U	0.130 U	0.0005 U	0.0007 U	0.0007 U	0.0005 U	0.0005 U	0.0005 U
Toluene	2.5	0.0036	0.160	0.260	0.071 D	0.001 U	0.001 U	0.00018 J	0.00022 J	0.0005 U
Trichloroethylene*	0.025	0.00094 J	0.001 U	0.130 U	0.0005 U	0.001 U	0.001 U	0.0005 U	0.0005 U	0.0005 U
Vinyl Chloride	0.01	***0.3***	***0.570***	***0.770***	***0.550*** D	0.001 U	0.001 U	0.0005 U	0.0005 U	0.0005 U
Xylenes, Total	10.0	0.0011 J	0.023	0.026 J	0.037	0.003 U	0.003 U	0.0005 U	0.0005 U	0.0005 U

NOTES:

Results are in milligrams per liter (mg/L).
GRO = Groundwater Remediation Objective (35 IAC Part 742 TACO regulations)
NA = No Applicable TACO GRO
Bold/underlined values exceed Class II GROs.
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B = Analyte detected in the blank.
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D = Diluted analysis.
E = Estimated value. Exceeded the upper level of the calibration range.
* Reporting limit may be at or above Class II GRO; compound not necessarily above the GRO.
** = Lab reported diluted and undiluted analysis results. The highest positive result or the lowest detection limit are reported.
Data prior to the 2004 data were provided by Clayton Group Services, Inc.

TABLE 1
VOCs Detected in MW03S Series Wells
2003 - 2004 Quarterly Groundwater Sampling Events

ILD 005078126 -- Douglas County -- 041808002
Millennium Petrochemicals, Inc. / Tuscola, Illinois

COMPOUNDS	Class II GROs	SAMPLE LOCATION AND SAMPLE DATE			
		MW16			
		8/18/2003	11/5/2003	2/26/2004	5/14/2004
Acetone	0.7	0.025 U	0.025 U	0.0019 J	0.0025 U
***Benzene** *	0.025	0.0006 U	0.0006 U	0.0005 U	0.0005 U
Bromodichloromethane *	0.0002	0.001 U	0.001 U	0.0005 U	0.0005 U
2-Butanone	NA	0.025 U	0.025 U	0.0025 U	0.0025 U
***Chloroform** *	0.001	0.0008 J	0.001 U	0.0005 U	0.0005 U
Chloromethane	NA	0.001 U	0.001 U	0.0005 U	0.0005 U
1,1-Dichloroethane	3.5	0.001 U	0.001 U	0.0005 U	0.0005 U
1,1-Dichloroethylene*	0.035	0.001 U	0.001 U	0.0005 U	0.0005 U
cis-1,2-Dichloroethylene	0.2	0.001 U	0.001 U	0.0005 U	0.0005 U
trans-1,2-Dichloroethylene	0.5	0.001 U	0.001 U	0.0005 U	0.0005 U
Ethylbenzene	1.0	0.001 U	0.001 U	0.0005 U	0.0005 U
Methylene Chloride*	0.05	0.005 U	0.005 U	0.00019 J	0.0005 U
Styrene	0.5	0.001 U	0.001 U	0.0005 U	0.0005 U
Tetrachloroethylene*	0.025	0.0007 U	0.0007 U	0.0005 U	0.0005 U
Toluene	2.5	0.001 U	0.001 U	0.00013 J	0.0005 U
Trichloroethylene*	0.025	0.001 U	0.001 U	0.0005 U	0.0005 U
Vinyl Chloride	0.01	0.001 U	0.001 U	0.0005 U	0.0005 U
Xylenes, Total	10.0	0.003 U	0.003 U	0.0005 U	0.0005 U

NOTES:

Results are in milligrams per liter (mg/L).
GRO = Groundwater Remediation Objective (35 IAC Part 742 TACO regulations)
NA = No Applicable TACO GRO
Bold/underlined values exceed Class II GROs.
J = Detected below the reporting limit.
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U = Not detected at the reporting limit.
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* Reporting limit may be at or above Class II GRO; compound not necessarily above the GRO.
** = Lab reported diluted and undiluted analysis results. The highest positive result or the lowest detection limit are reported.
Data prior to the 2004 data were provided by Clayton Group Services, Inc.

~~On-Site~~ Meeting with Equistar, Tuscola representatives
May 13, 2004
Chicago, IL

U.S. EPA: Allen Debus, Peter Ramanauskas
Equistar: David Guier (Lyondel/Equistar), John Watson (GCD - legal), Ron Hutchens (Environ), Barbara Coughlin (Environ)

General

I noted that they did a good job of evaluating the newly identified areas via sampling locations and numbers (501 samples analyzed) as a first pass to investigate the unknown areas. These areas were former production areas that have been torn down, but have subsurface structures remaining in place. They investigated these areas via soil sampling to check for any potential releases.

Overall, Equistar is interested in eliminating areas from further concern via TACO Tier II. They will propose these areas in the updated report and plan to focus remaining efforts on the areas that don't comply with TACO Tier II. They would like us to agree that if there is no issue under TACO Tier II, there will be no further required action at those areas. I will consider that when the reports arrive.

MW03S Area

Ron informed us that 4th quarter monitoring was ongoing at the MW03S area. Once the round was done, the report will be prepared and a workplan for next steps will be submitted by August. Their thinking is to incorporate TACO Tier II evaluation on the groundwater in this area. Stated that they will evaluate the entire area after collecting the final round of GW samples.

I inquired about IEPA's comments about use of TACO equations on the sludges. They are not ready to respond to that yet, but once the report is written, we may need to revisit with IEPA.

Ron mentioned that they are not willing to state that the closed lagoons are a source of the organic contamination in the groundwater.

I mentioned that when the report is prepared, I would like to see the CA750 EI included. I stated that they will have to show that any discharges to surface water are "currently acceptable" via criteria stated under question #6 of the CA750 form.

For purposes of CA750, they will also send me groundwater data from the landfills which is taken for IEPA.

New AOCs

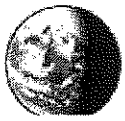
As Equistar is interested in closing out site investigation, they propose to evaluate areas under TACO Tier II. We have allowed that under our agreement with Equistar. I reminded them that when they re-write the report on these areas and are looking at areas to do additional sampling/bounding work, to keep in mind that those areas where contamination may not be bounded due to different sampling depths should be revisited; and recheck borings where data was not taken or "sheen" was noticed and sample not taken. They promised to do that and will also perhaps send in "intermediate" planning documents prior to final workplan to explain rationale for additional sampling locations.

As for the "unknown hydrocarbons" issue, they stated that TACO does not have standards for TPH and that they will ensure that there is no "free product" issue. As for remaining hydrocarbons in given areas, they will attempt to show that these areas will be naturally attenuated. They plan to use temporary wells to check for groundwater contamination and will most probably deed restrict groundwater usage at the site.

Timing

A revised report, response to comments, and new workplan will be submitted by end of June for the AOCs.

A report and workplan for next steps at the MW03S are will be submitted by August.



"Watson, John W." <JWatson@GCD.com>
01/15/04 12:18 PM

To: Peter Ramanauskas/R5/USEPA/US@EPA
cc: rhutchens@environcorp.com, "Bramnick, Michael R." <michael.bramnick@millenniumchem.com>
Subject: Millenium - Tuscola

This email will follow-up on our conversations of earlier this week regarding the personnel transitions which have occurred in connection with the Millenium - Tuscola matter. Both Ron Hutchens at Environ and I look forward to working with you on this matter. Our contact information is provided below. As we discussed, you should direct all future correspondence through Ron.

As we indicated to you as well, we are currently in the process of transitioning files from Clayton and have not had the opportunity to fully review all relevant documentation, although we expect this process to be completed in the near term. Once this transition is complete, we will need to turn our attention to preparing reports summarizing the results of recent sampling conducted at the site. Specifically, pursuant to our agreement, we will provide to USEPA by the end of February a report summarizing the results of the Additional AOC Investigation completed consistent with the July 1, 2003 Work Plan. We will also provide you by the end of next week the analytical results from the first two quarters of groundwater sampling conducted in the vicinity of MW03 as proposed in Millenium's July 29, 2003 submittal. A formal report summarizing the results of this investigation will be completed once the 4 quarters of data have been obtained and analyzed later this year.

With respect to other issues associated with the Voluntary Corrective Action Agreement, we discussed the fact that quarterly reporting of progress under the Agreement had previously ceased after the submittal of the original EI Report and the CMS were submitted to you. We agreed to begin again to provide such quarterly reports to USEPA. Given the deliverables due in the first quarter, we would propose to provide you with the next quarterly report for the first quarter of 2004 by not later than April 15th.

Finally, as you suggested, we will endeavor to set up a meeting with you sometime in early March after you have had an opportunity to review the Additional AOC report. We will also provide you with a formal response to your November 20th letter forwarding Illinois EPA comments on groundwater issues. However, as we agreed, such a response will be most productive after we have reviewed all of the data, prepared the anticipated reports and conducted our meeting you and perhaps a similar conference with Illinois EPA.

Please contact me immediately if this email does not accurately document our discussions and a schedule for deliverables. We look forward to working with you in the future. Thank you for your assistance and cooperation in accommodating this transition.

Ron Hutchens
Environ
740 Waukegan Road
Suite 401
Deerfield, IL 60015
rhutchens@environcorp.com
847.444.9200

John W. Watson
Gardner Carton & Douglas LLP
191 N. Wacker Drive
Suite 3700
Chicago, IL 60606
Tel: (312) 569-1446

Fax: (312) 569-3446
E-mail: jwatson@gcd.com

Equistar Tuscola - New Facility Contacts 7/13/04

Received Phone Call from
John Watson (New Attorney for Millennium) - Gardner, Kartner
Ron Hutchins - Environ

Ron is Technical POC (847) 444-9200
John - 312-569-1446

John Rice & Tom Dimond no longer on this project.
Neither is Clayton, Group Services.

→ Will get me deliverables on:
- Kelly investigated areas reports (Feb).
- GW data near MW035.
- Quarterly report.

- Plan to have meeting after report comes in.

Jim Moore
<Jim.Moore@epa.state.il.us>

To: Peter Ramanauskas/R5/USEPA/US@EPA
cc:
Subject: Re: Equistar Tuscola IEPA Review

11/21/03 03:20 PM

1. I am going to go backwards, because I think it may be a bit more logical.

2. Your comment regarding our Item 1 indicates there is no complete pathway for human exposure to the sludges at the bottom of the ponds. TACO requires engineered barriers and institutional controls to ensure these pathways remain incomplete in the future. Also, you must remember that TACO established remediation objectives for soil and groundwater--wastewater treatment sludge is not soil.

3. Comment 3 was made to point out their statement is not correct.

4. Our comment 5 pretty much builds on what I said in Item 2 above. You need to have some formal mechanism to place the necessary restrictions on the ponds. However, I do not know what that mechanism is.

>>> <Ramanauskas.Peter@epamail.epa.gov> 11/20/03 11:44AM >>>

Hi Jim,

Thanks for the review of the Equistar documents. I've had a chance to review your comments and wanted to ask a couple of things. Overall, your
comments point out that TACO is incorrectly applied. That's pretty much
what I expected since their calculated results make no sense when compared to the empirical data they gathered. I'll be passing your feedback on to the facility.

Specifically, I'd like to talk about Comment 5. You point out that there
is no formal mechanism in place to: (1) limit exposure to the sludges present in the ponds, (2) ensure that the ponds are properly closed after they are no longer in use, and (3) ensure the groundwater contamination in the vicinity of the ponds is adequately addressed.

I agree that we need a mechanism in place to ensure that when the time comes to close the WWTP, it is closed properly. Currently, I see RCRA corrective action under our agreement with Millennium as addressing issues with releases from the ponds, perhaps requiring source removal from the closed ponds and perhaps containment/remediation of any migration from the active/currently closed ponds. As for an oversight mechanism when the time comes for WWTP decomissioning, 40 CFR 261.4 (a)(2) does not exclude industrial wastewaters or sludges from the definition of RCRA solid waste, therefore we can address it. What do you
feel is the best way to implement a mechanism? Would IEPA Bureau of Land
prefer to impose one under its authority?

For item 3, groundwater contamination in the area is being investigated
and addressed under the voluntary corrective action agreement in place

between Region 5 and Millennium. Should they become recalcitrant, we can
always shift it to a 3008(h) order.

And for item 1, I believe human exposure to the sludges is currently limited since contaminated sludges are at the bottom of the ponds. There
should be no complete exposure pathway unless the ponds are dredged by workers (which apparently has never been done).

Anyway, let me know what you think about the closure issue when you get
a chance.

Thanks,
Peter

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

File

REPLY TO THE ATTENTION OF:
DW-8J

November 20, 2003

Mr. Monte M. Nienkerk, P.G.
Senior Project Manager
Clayton Group Services
3140 Finley Road
Downers Grove, IL 60515

Re: MW03S Area Investigation
Illinois EPA TACO Comments
Millennium Petrochemicals, Inc.
Tuscola, IL
ILD 005 078 126

Dear Monte:

As mentioned in my June 16, 2003 email to you, U.S. EPA requested a review of the MW03S report by the Illinois EPA. While corrective action activities at the Equistar Chemicals facility in Tuscola, Illinois are being carried out under U.S. EPA's oversight, we requested IEPA's review of the report because it contained an evaluation of soil and groundwater in the vicinity of MW03S using 35 Ill. Adm. Code 742 (Tiered Approach to Corrective Action Objectives or "TACO"). IEPA was also provided with previous reports and correspondence prepared for this project to provide background on work performed to date. We have received IEPA's comments and are including them as an attachment to this letter. Please review and reply to the attached comments.

If you have any questions, please feel free to contact me at (312) 886-7890.

Sincerely,

Peter Ramanauskas
Environmental Scientist
Waste Management Branch
Corrective Action Section

cc: Jeff Turner, IEPA

Attachments: 1
F:\PRAMANAU\Equistar\IEPA Comments Transmittal to CGS.wpd

Illinois EPA's Comments on "MW03S Area Investigation" dated May 15, 2003
Equistar Chemicals/Millennium Petrochemicals, Tuscola, Illinois (ILD 005 078 126)

Comment 1:

A review of the information in the document indicates the Wastewater Treatment Ponds 1, 4, and 6 were essentially closed as landfills between 1983 and 1986 as between four to six feet of wastewater treatment sludge appears to remain in the ponds. This would indicate that the ponds are subject to the requirements of 35 Ill. Adm. Code 800-817. As such, in accordance with 35 Ill. Adm. Code 742.105, the procedures set forth in 35 Ill. Adm. Code 742 cannot be used for these units. Thus, it is not appropriate to use TACO in evaluating the soil and groundwater contamination in the vicinity of these units.

Comment 2:

It appears as though additional ponds were found at the facility during the MW03 area investigation (referred to as wastewater treatment ponds 1 though 6 in the MW03 report) beyond those identified in Figure 3 of the Environmental Indicators report. This numbering is somewhat confusing, as the active ponds in this area were initially identified as High Ponds 1 and 2, but in this report are essentially referred to as Ponds 2 and 3.

Comment 3:

Page 11 of the Corrective Measures Study indicates that the wastewater treatment ponds are active and regulated under the Clean Water Act. This statement is not correct, as only the discharge from these ponds is regulated by the Clean Water Act. [U.S. EPA Note: see 40 CFR 261.4(a)(2)].

Comment 4:

No information has been provided regarding the amount of sludge present in High Ponds 2, 3, 7 to 20, Middle Ponds 1 to 6, and Low Ponds 7, 8. As a substantial amount of sludge is likely present in each of these ponds, it is not appropriate to evaluate the contaminant levels present in the sludge in each pond using TACO as: (1) the ponds are essentially being used as disposal impoundments; and (2) sludge is not soil and TACO is used to develop remediation objectives for soil, not sludge.

Comment 5:

The Illinois EPA has determined that it cannot approve the 35 Ill. Adm. Code 742, Tier 2 Evaluation for groundwater in the vicinity of the WWTP lagoons and monitoring well MW03S. IEPA has determined that a 35 Ill. Adm. Code Part 742 risk assessment is not applicable to the site due to the following: (1) soil migration to groundwater equations are for soil and groundwater, not sludges, (2) the WWTP sludges constitute waste left in place. Part 742 risk assessment cannot be applied to SWMUs with waste left in place, (3) there is no engineered barrier in place at any of the WWTP lagoons preventing the migration of contamination from sludges to groundwater. Existing groundwater impacts demonstrate that soil in the vicinity of the wastewater treatment plant has not prevented contamination of the shallow aquifer regardless of its characterization as a "Type E" soil, (4) the WWTP sludges are clearly situated below the water table providing direct contact of contaminated waste with groundwater, and (5) WWTP lagoons 2 and 3 still actively accumulate waste. These units are unlined and thus provide a potential ongoing source of groundwater contamination.

Peter Ramanauskas
11/20/03 11:44 AM

To: Jim.Moore@epa.state.il.us
cc: Cho.Hak@EPAMAIL.EPA.GOV
Subject: Equistar Tuscola IEPA Review

Hi Jim,

Thanks for the review of the Equistar documents. I've had a chance to review your comments and wanted to ask a couple of things. Overall, your comments point out that TACO is incorrectly applied. That's pretty much what I expected since their calculated results make no sense when compared to the empirical data they gathered. I'll be passing your feedback on to the facility.

Specifically, I'd like to talk about Comment 5. You point out that there is no formal mechanism in place to: (1) limit exposure to the sludges present in the ponds, (2) ensure that the ponds are properly closed after they are no longer in use, and (3) ensure the groundwater contamination in the vicinity of the ponds is adequately addressed.

I agree that we need a mechanism in place to ensure that when the time comes to close the WWTP, it is closed properly. Currently, I see RCRA corrective action under our agreement with Millennium as addressing issues with releases from the ponds, perhaps requiring source removal from the closed ponds and perhaps containment/remediation of any migration from the active/currently closed ponds. As for an oversight mechanism when the time comes for WWTP decomissioning, 40 CFR 261.4(a)(2) does not exclude industrial wastewaters or sludges from the definition of RCRA solid waste, therefore we can address it. What do you feel is the best way to implement a mechanism? Would IEPA Bureau of Land prefer to impose one under its authority?

For item 3, groundwater contamination in the area is being investigated and addressed under the voluntary corrective action agreement in place between Region 5 and Millennium. Should they become recalcitrant, we can always shift it to a 3008(h) order.

And for item 1, I believe human exposure to the sludges is currently limited since contaminated sludges are at the bottom of the ponds. There should be no complete exposure pathway unless the ponds are dredged by workers (which apparently has never been done).

Anyway, let me know what you think about the closure issue when you get a chance.

Thanks,
Peter

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601

ROD R. BLAGOJEVICH, GOVERNOR RENEE CIPRIANO, DIRECTOR

217/524-3300

October 21, 2003

CERTIFIED MAIL
7002 3150 0000 1219 9145

Hak Cho
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Re 0418080002 -- Douglas County
Equistar (also known as Millenium Petrochemicals)
ILD005078126
RCRA Permit

Dear Hak:

This is in response to your request for Illinois EPA's support in reviewing a submittal made by the above-referenced facility as part of a voluntary RCRA corrective action agreement. This submittal, entitled "MW03S Area Investigation" addresses the soil and groundwater contamination in the vicinity of monitoring well MW03S using the procedures in 35 Ill. Adm. Code 742 (Tiered Approach to Corrective Action Objectives or "TACO"). Since these regulations are specific to the State of Illinois, Illinois EPA is very glad to aid USEPA in the review of this document.

Illinois EPA also looked at previous corrective action submittals made by the facility, including a document entitled "Corrective Measures Study." MW03S was found to be located downgradient of one of the solid waste management units of concern at this facility—the wastewater treatment ponds. Given this fact, as well as the fact that waste sludges remain in some of the impoundments, Illinois EPA determined it was not acceptable for the facility to use TACO in the analysis of soil/groundwater contamination in the vicinity of the wastewater treatment ponds and at monitoring well MW03S. Specific deficiencies in the subject submittal and the overall corrective action efforts at Monitoring Well MW03S and the wastewater treatment ponds are attached.

If you have any questions regarding the groundwater-related aspects of our comments, please contact Scott Kaufman at 217/785-6869. Questions regarding other aspects of these comments should be directed to James Moore, P.E. at 217/524-3295.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:JKM:bjh\03851s.doc
JKM JLM

Attachment: IEPA Comments on "MW03S Area Investigation"

Illinois EPA's Comments on "MW03S Area Investigation," dated May 15, 2003
Equistar Chemicals/Millenium Petrochemicals, Tuscola, Illinois (ILD005078126)

Illinois EPA has completed its review of a document entitled "MW03S Area Investigation" dated May 15, 2003, which was initially submitted to USEPA as part of a voluntary RCRA corrective action effort at the Equistar facility in Tuscola, Illinois (ILD005078126). While these efforts are being carried out under USEPA's oversight, Illinois EPA was asked to review this report because it contained an evaluation of soil and groundwater in the vicinity of MW03S using 35 Ill. Adm. Code 742 (Tiered Approach to Corrective-Action Objectives or "TACO").

In reviewing this report, Illinois EPA also reviewed the corresponding portions of a document entitled "Corrective Measures Study," dated January 31, 2002, as well as other documents previously submitted under the voluntary agreement to gain a better understanding of the overall issues addressed in the subject report. Among other things, this review found that MW03S is located downgradient of one of the solid waste management units of concern at this facility—the wastewater treatment ponds. Because of this, Illinois EPA reviewed the previous submittals to determine what had been completed to date relative to corrective action at these units.

The final results of Illinois EPA's review of the MW03S area investigation and the investigation/evaluation conducted at the wastewater treatment ponds (which is directly related to the MW03 area) are as follows:

1. A review of the information in the document entitled "MW03 Area Investigation" indicates the Wastewater Treatment Ponds 1, 4, and 6 were essentially closed as landfills between 1983 and 1986 as between four to six feet of wastewater treatment sludge appear to remain in the ponds. This would indicate that the ponds are subject to the requirements of 35 Ill. Adm. Code 800-817. As such, in accordance with 35 Ill. Adm. Code 742.105, the procedures set forth in 35 Ill. Adm. Code 742 cannot be used for these units. Thus, it was not appropriate for Millenium to use 35 Ill. Adm. Code 742 in evaluating the soil and groundwater contamination in the vicinity of these units. Because of this, Illinois EPA did not review the TACO evaluation contained in the subject submittal. It must be noted that this position regarding the use of TACO for these units was previously conveyed to USEPA via e-mails and telephone discussions last year.

2. It appears as though four additional ponds were found at the facility during the MW03 area investigation (referred to as wastewater treatment ponds 1, 3, 4, 5 and 6 in the invesigation report) beyond those identified in figure 3 of the Enviromental Indicators Report. This numbering is somewhat confusing, as the active ponds in this area were initially identified as High Ponds 1 and 2 but in this report are essentially referred to as Ponds 2 and 3.

3. Page 11 of the Corrective Measures Study indicates that the wastewater treatment ponds are active and regulated by the Clean Water Act. This statement is not correct, as only the discharge from these ponds is regulated by the Clean Water Act.

4. No information has been provided regarding the amount of sludge present in High Ponds 2, 3, 7-20; Middle Ponds 1-6 and Low Ponds 7, 8. As a substantial amount of sludge is likely present in each of these ponds, it is not appropriate to evaluate the contaminant levels present in the sludge in each pond using TACO, as: (1) the ponds are essentially be being used as disposal impoundments; and (2) sludge is not soil and TACO is used to develop remediation objectives for soil, not sludge. Due to the fact that TACO is not applicable to the ponds, Illinois EPA did not conduct a review of the TACO evaluation conducted on the sludges within the ponds.

5. Several times throughout the various corrective action documents submitted on behalf on Millenium Petrochemicals by Clayton Group Services, statements are made about the limited exposure pathways associated with the ponds and that they are regulated by the Illinois EPA's Bureau of Water. This is not the case and thus there is no formal mechanism currently in place to: (1) limit exposure to the sludges present in these ponds; (2) ensure the ponds are properly closed after they are no longer in use; or (3) ensure the groundwater contamination in the vicinity of the ponds is adequately addressed and does not adversely impact human health and the environment. It would seem as though such a formal mechanism and procedures must be established and then implemented to ensure the requirements of Section 3008(h) are met at this facility.

6. The Illinois has determined it cannot approve the 35 Ill. Adm. Code 742, Tier 2 Evaluation for groundwater in the vicinity of the WWTPs and monitoring well MW03S. The Illinois EPA has determined that a 35 Ill. Adm. Code Part 742 risk assessment is not applicable to the site due to the following:

   a. 35 Ill. Adm. Code 742 soil migration to groundwater equations are for soil and groundwater, not sludges.

   b. The WWTP sludges constitute waste left in place. 35 Ill. Adm. Code Part 742 risk assessment cannot be applied to SWMUs with wastes left in place.

c. There is no engineered barrier in place at any of the WWTPs preventing the migration of contamination from the sludges to groundwater. Existing groundwater impacts demonstrate that soil in the vicinity of the wastewater treatment plant has not prevented contamination of the shallow aquifer regardless of its characterization as a "Type E" soil.

d. The WWTP sludges are clearly situated below the water table providing direct contact of contaminated waste with groundwater.

e. WWTPs 2 and 3 still actively accumulate waste. These units are unlined and thus provide a potential on-going source of groundwater contamination.

Rec'd 7/31/03

3140 Finley Road
Downers Grove, IL 60515
630.795.3200
Fax 630.795.1130

Clayton GROUP SERVICES

Via Federal Express

July 30, 2003

Mr. Peter R. Ramanauskas
U.S. ENVIRONMENTAL PROTECTION AGENCY
77 West Jackson Boulevard (DW-8J)
Chicago, Illinois 60604-3590

Clayton Project 15-00116.06

RE: Response to U.S. EPA Comments
MW03S Area Investigation / ILD005078126
Millennium Petrochemicals, Inc. / Tuscola, Illinois

Dear Peter:

Clayton Group Services, Inc. (Clayton), on behalf of Millennium Petrochemicals, Inc. (Millennium), is providing two (2) copies of the enclosed reply to U.S. EPA comments regarding the MW03S Area Investigation (Investigation) prepared by Clayton and dated May 15, 2003. The comments were made in e-mails to Clayton (dated June 16, 2003; June 25, 2003; and July 9, 2003) and during a meeting between you, Mr. Monte Nienkerk, and Mr. Ken Comire of Clayton on July 1, 2003.

Should you have any questions or comments concerning this material, please contact me at 630/795-3207.

Sincerely,

Monte M. Nienkerk

Monte M. Nienkerk, P.G.
Senior Project Manager
Environmental Services

Enclosure: Reply to U.S. EPA Comments on the MW03S Area Investigation Report

cc: Michael Bramnick, Millennium Petrochemicals, Inc. (1 copy)
John Rice, Millennium Petrochemicals, Inc. (1 copy)
Tom Dimond, Mayer, Brown Rowe & Maw (1 copy)
Jason Pontnack, Equistar (2 copies)
David Guier, Lyondell Chemical Company (1 copy)
Jim Moore, Illinois EPA – Springfield (2 copies)
Jeff Turner, Illinois EPA – Champaign (1 copy)
Tuscola Public Library (1 copy)

15-00116.06ca001.doc/MMN

3140 Finley Road
Downers Grove, IL 60515
630.795.3200
Fax 630.795.1130

Clayton GROUP SERVICES

Via Hand Delivery

July 1, 2003

Mr. Peter R. Ramanauskas
U.S. ENVIRONMENTAL PROTECTION AGENCY
77 West Jackson Boulevard (DW-8J)
Chicago, Illinois 60604-3590

Clayton Project 15-00116.07

RE: Addendum to Assessment of Additional Areas of Concern
ILD005078126
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Dear Peter:

Clayton Group Services, Inc. (Clayton), on behalf of Millennium Petrochemicals, Inc. (Millennium), is hereby submitting this Addendum to Assessment of Additional Areas of Concern (Addendum) that has been completed for the Tuscola, Illinois facility.

As you will see in the report, we have incorporated responses to address the U.S. EPA comments received via e-mail on April 9, 2003, June 3, 2003 and June 10, 2003, regarding the Assessment of Additional Areas of Concern (dated March 28, 2003). We are planning to collect soil samples from the additional areas identified in the Addendum, which includes the Chemical Loading Area beginning the week of July 14, 2003. We will be visiting the site the week of July 7 to stake the soil sampling locations. Should you have any questions or comments concerning the report, please contact me at 630/795-3207.

Sincerely,

Monte M. Nienkerk

Monte M. Nienkerk, P.G.
Senior Project Manager
Environmental Services

Enclosure: Addendum to Assessment of Additional Areas of Concern (2 copies)

cc: Michael Bramnick, Millennium Petrochemicals, Inc. (1 copy)
John Rice, Millennium Petrochemicals, Inc. (1 copy)
Tom Dimond, Mayer, Brown Rowe & Maw (1 copy)
Jason Pontnack, Equistar (2 copies)
David Guier, Lyondell Chemical Company (1 copy)
Jeff Turner, Illinois EPA – Champaign (1 copy)
Tuscola Public Library (1 copy)

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Existar Tuscola Mtg

7/1/03

Additional Areas of Concern

↳ Reissued doc. to address comments.

Clayton GS - going to facility next wk to stake out sampling locations.
- utility locator will try to find underground piping
- Week of July 14th - start sample collection. 2 to 3 wks fieldwork

MW03S Supplemental

Modelling → Remaining soil results will not cause problem. At WWTP lagoons.

Will install wells
↳ look into one south of GW 12, 15, 17
↳ will monitor for 1 yr. See what they find → then look at remedial options.
↳ Analytical back in workplan.

Chemistry email (6/25/03)
↳ None exceeded holding time. Will send me data pertaining to samples (received temperature). Check w/ Allen re additional detailed data.

* Called out because, it would be a gw problem.
Used 5035 Method - used disposable syringe (5g)
Field Preservation Method.
↳ Will send in SOP for this.

* Indistinguishable peaks. Benzene caused problem. May back out they are all elevated.

(2)

+ letter document will be sent for response to my 6/16/03 email.

Peter Ramanauskas 06/16/03 04:10 PM

To: mnienkerk cc: Jeff.Turner
Subject: MW03S Report

Hi Monte,

I thought I'd pass this comment on the MW03S investigation report along to you. It's a general comment on the report conclusions. Additional specific comments may follow as I am having IEPA take a look at the TACO calculations. That said, can you please send me 1 extra copy of the MW03S Investigation? Thanks.

Millennium performed predictive modeling on 6 VOCs detected above Tier 1 SROs for Class II groundwater from the WWTP lagoons and MW03S to determine if a groundwater standard at the Freshwater Lake would be exceeded. The conclusions of this modeling state that the current highest detected residual concentrations of benzene (13 mg/kg), styrene (23 mg/kg), and PCE (1.1 ppm) remaining within the WWTPs will reach Class I GROs within 23.2 feet, 2.7 feet, and 12.2 feet of the westernmost lagoon respectively; and concentrations of 1, 2 - DCA (0.45 mg/kg), TCE (0.45 mg/kg), and vinyl chloride (0.9 mg/kg) within the WWTPs will reach Class I GROs within 6.1 feet, 22.4 feet, and 63.8 feet of the westernmost lagoon respectively. A similar conclusion is reached for benzene at MW03S (i.e., the Class I GRO will be reached within 14.2 feet of MW03S). Millennium states that the Freshwater Lake is approximately 80 feet from the WWTPs and MW03S is approximately 108 feet away from the lake.

The groundwater data obtained during this investigation tells a vastly different story. Benzene is detected in GW03 at 13 mg/L (520 times the TACO Class II GRO of 0.025 mg/L). Styrene is detected at 0.82 mg/L (1.64 times Class II GRO of 0.5 mg/L). PCE is detected at 0.074 mg/L (2.96 times Class II GRO of 0.025 mg/L). Vinyl Chloride is detected at 0.33 mg/L (33 times Class II GRO of 0.01 mg/L). Figure 9 shows GW03 to be approximately 100 feet away from WWTP lagoon #1. According to the predictive modeling performed, none of these contaminants should be detected above the **Class I GRO**. Furthermore, groundwater samples taken from **within approximately 25 feet of the lake shore** show detections of benzene, cis-1,2-dichloroethylene, and vinyl chloride above Class II GROs.

The U.S. EPA has requested assistance from IEPA for the review of the predictive modeling under TACO. Additional comments specific to the modeling may be forthcoming. However, U.S. EPA believes that Millennium's conclusions based on predictive modeling are unsupported by the data obtained during the investigation. It appears that an organics plume is present which seems to be migrating to the Freshwater Lake. U.S. EPA disagrees with Millennium's conclusion that no corrective measures are necessary to address residual VOCs present within the closed WWTPs and that no action needs to be taken with respect to the groundwater contamination. Millennium proposes to install four additional wells to monitor the limits of the groundwater VOC plume to confirm that it remains under control. The U.S. EPA encourages this as part of meeting the Environmental Indicator (CA750) requirement for showing that contaminated groundwater migration is under control. However, based on the data provided and shown in Figure 9, it appears that there is a good chance proposed wells MW13, MW14, and MW15 will be found to be contaminated. U.S. EPA suggests that Millennium re-evaluate this proposal and consider plume remedial and control options and would welcome a meeting with

Millennium's contractor, Clayton Group Services, to discuss these matters.

Peter Ramanauskas To: mnienkerk cc: Jeff.Turner
06/10/03 03:58 PM Subject: Chem Loading

Hi Monte,

As I mentioned on the phone yesterday, here is an additional comment on the Chemical Loading Area:

At this point, I still think we should still look into the area via sampling as I feel it is still an Area of Concern based on information that Equistar has supplied (i.e., historical management of benzene and possible late 90's soil removal activities in the area for use in a bio-bed treatment system - why remove soils from that area for use in a biotreatment system if unaffected?). Could you please supply me with information on the Chemical Loading Area such as a figure of locations of current/historical tanks, locations of historical sampling/soil removal areas, and data from IEPA and Equistar samples taken in this area? When was the area converted from product/raw material storage to < 90 day accumulation? What was managed in the tanks prior to < 90 day storage (e.g., potential constituents of concern, what was the caustic)? Was bulk hazwaste shipping by rail done here prior to the area becoming < 90 day storage?

Thanks!
Peter

Peter Ramanauskas
06/03/03 10:44 AM

To: Monte Nienkerk
Subject: Re: Comments on Assessment of Additional Areas of Concern

Hi Monte,

I received your phone message. Thank you for the responses and making the revisions presented in those responses. I think it's looking pretty good, but I do have some remaining questions/comments on the responses:

4) Do you have information available on the 1992 PCB cleanup and verification sampling done at this area? If so, we should bias some sampling to those locations.

3 will talk to facility folks

5) For VOC soil sampling, include information on how soil samples will be collected (e.g. Encore samplers, depth of soil aliquot for analysis - 6 to 12 inch?) If this information has been previously presented in the QAPP, please reference it. - 5035

For determining the direct-push method sample soil intervals chosen for lab analysis, what interval would you propose to sample in the lab if there were no elevated PID readings or visual/odor obervations? Looking at Table 2 at the back of the document, it looks like you'll be running PID on all the samples anyway. I propose the following scheme: If there is an elevated PID reading, take a sample for lab analysis from that interval and the one immediately beneath it. This way we can see if there is a migration concern. If there are no elevated PID readings and no underground structures take a sample at the surface interval for shallow soil borings or at the 8 to 10 foot level or immediately above the water table (if encountered) for deep borings. If no elevated PID readings and an underground structure exists, take one at base of the structure and one at the 8 to 10 foot level or the interval immediately above groundwater (if encountered).

Flexibility to go deeper.

- OK

Metals or PID sensitivity

6) Please provide a revised Table 2 (pg 19) for insertion into the workplan. OK

I've also recently received the MW03S Area Investigation, thanks. I will be reviewing this shortly as well.

Thanks and please let me know if you have any questions.
Peter
-----Monte Nienkerk <MNienkerk@claytongrp.com> wrote: -----

To: Peter Ramanauskas/R5/USEPA/US@EPA
From: Monte Nienkerk <MNienkerk@claytongrp.com>
Date: 05/06/2003 05:24PM
cc: Ken Comire <KComire@claytongrp.com>, "Ron St. John" <RStjohn@claytongrp.com>, tdimond@mayerbrown.com
Subject: Re: Comments on Assessment of Additional Areas of Concern

Peter,

You will find our reply to your comments in bold type following each of your comments. We are hoping to initiate the additional field work that is proposed for the additional areas within the next few weeks and will notify you prior to our mobilizing to the field. Please let me know if you have any additional questions or comments based on our reply. Thanks.

Monte Nienkerk
630/795-3207

>>> <Ramanauskas.Peter@epamail.epa.gov> 04/09/03 02:55PM >>>
Gentlemen,

week of June 30th - Monte will go down and stake out locations,

week of July 7th - Install MW wells at same time.
Chem Loading - they can go in there. I need to email them.

I've looked through the March 28, 2003 Assessment of Addtional Areas of
Concern for the AOCs at the Tuscola Plant. Overall it looks pretty good.
I do have some comments I'd like you to address. They are listed below:

U.S. EPA Comments on Assessment of Additional Areas of Concern
Millennium Petrochemicals, Inc. - ILD 005 078 126
April 9, 2003

Comment 1:

Section 1.0, page 2 mentions an under-drain system at the chemical loading area. Was this under-drain system installed prior to demolition
of tanks in this area in the late 1980's? Would the under-drain system
have captured releases from former tanks?

Response: According to Equistar personnel, the under-drain system was installed in April 1992. It should be noted that only the caustic storage tank was demolished. The olefins tank and the benzene tank are still being used for the facilities less than 90 day hazardous waste storage. As stated in Section 1.0 Introduction/Background, the chemical loading area is an active area and therefore should not considered an AOC. If any past releases occurred in this area, it would be impossible to distinguish impacts to the soil from that of current Equistar operations in the chemical loading area.

Comment 2:

Section 3.2, Investigation Approach for the Former Ethylene Production Area, states that soil samples will be collected from locations associated with underground structures. Sumps are not mentioned as part
of the sampling locations. How many sumps are estimated to be in this area? If possible to locate these sumps, additional samples should be biased towards those locations.

Response: A review of available facility drawings indicates that 30 sumps may have been present in the Former Ethylene Production Area. They appear to have been clustered in the central portion of the area (within 3 distinct areas of the central portion). All appear to have drained to manholes where sampling is already proposed. Never the less, we propose adding three new borings (one in each of the distinct areas identified as having sumps), assuming these areas (or sumps) can be located. A revised Figure 4 is attached showing the three additional boring locations.

Comment 3:

Section 6.2, Investigation Approach for Former Agricultural Production Area, states soils samples will be collected from locations associated with storage areas and underground structures. Figure 6 shows numerous

former storage tank structures, but not all locations have sampling associated. Have former tank locations at this and all other AOCs been
evaluated for sampling based on materials formerly stored within?

Response: As discussed in Section 6.0 Former Agricultural Chemical Production Area, the entire Area was shutdown in 1972. Therefore, no information was available to enable an evaluation of this Area in regards to the materials formerly stored within the tanks. However, Section 6.2 Investigation Approach presents the list of potential COCs within this Area, which was developed in consideration of the entire AOC. Therefore, the identified list of potential COCs should be more comprehensive than may actually be necessary at any particular tank location (or any other location within the AOC). The list of potential COCs at the other Areas was developed in the same manner. Thus, we believe this is a very conservative approach for not only the tanks within the Former Agricultural Chemical Production Area but for all tanks within the other AOCs.

Comment 4:

Section 7.2, Investigation Approach for Former Fire Training Grounds, mentions ditch sampling. Sampling locations are shown in Figure 7. Is
the ditch outside the borders of the Former Fire Training Grounds or does it run through the AOC? Can it be shown on Figure 7 with its associated sample locations? Where does this ditch run and what might be potential impacts to the receiving body? Sampling locations should account for potential contaminant migration down this ditch.

Response: The ditch traverses the southern end of the Former Fire Training Grounds. Four of the depicted proposed sampling locations on Figure 7 are within the ditch and, therefore, should be representative of potential contaminant migration within the ditch. The ditch and the associated sample locations within the ditch are more clearly presented on the attached revised Figure 7. At one time, the ditch flowed to the wastewater treatment ponds. When the fire training area was closed, the drainage was blocked and no longer flows anywhere. The potential impacts to the receiving body (WWTPs) would be expected to be the same as those that may be present within the AOC. As you are aware, the WWTPs were included in the RCRA Facility Investigation.

Comment 5:

Section 9.0 refers to the general sampling approach taken at the AOCs and states that typically only the top foot of soil will be collected for analysis except in those areas where subsurface structures are known
to exist. What about sampling depth at those areas such as the Former Polyethylene Production Area and the Former Polymer Pilot Plant where no
drawings showing details of the area could be found but underground structures are assumed to exist? Soil samples at all AOCs should be taken at a subsurface interval associated with depth corresponding to the base of the structure of concern and other intervals continuously to

the water table to ensure that potential historical releases have not migrated downward away from the structure.

Response: In order to be conservative, based on the absence of information that could identify the locations of any features (other than unidentified apparent outlines which may represent buildings or operational areas) within the Former Polyethylene Production Area (20 sample locations) and the Former Polymer Pilot Plant Area (9 sample locations), the density of the proposed sampling locations within these areas was increased as shown on Figures 5 and 8, respectively, of the submitted Assessment. In order to address the U.S. EPA's concerns in regards to these Areas, we propose to modify the general sampling approach for these Areas to incorporate continuous direct-push method sampling to a maximum depth of approximately 10 feet bgs for approximately 50% of the sampling locations within each area. The pattern of determining those borings to be completed to this depth will be based upon field observations at the time of drilling. We believe this will be a conservative approach for these Areas based on the absence of information.

We understand the U.S. EPA's concerns that soil samples at all AOCs should be taken at a subsurface interval associated with a depth corresponding to the base of the structure of concern (if such a structure was/is present at the proposed sampling location). However, as stated in Section 9.0 Sampling Approach, based on the evaluation of the AOCs, six of the eight AOCs warrant investigation to determine if potential COCs are present in the soil at concentration levels that may be of concern. As a result, Our goal is to sample and analyze the interval that indicates the greatest potential for contamination at any location rather than limit sampling to the base of a structure of concern. Therefore, as stated in Section 9.0, continuous sampling will be conducted to the termination of all borings. The identification of the interval with the greatest potential for contamination will be based on PID readings, field observations or at a depth corresponding to the base of the structure of concern, as appropriate. This will result in the analysis of one sample interval from each borehole. Therefore, We believe our method of obtaining the sample with the greatest potential for contamination is a conservative approach that will meet the goals of determining if these AOCs contain concentration levels of COCs that may be of concern, regardless of depth.

Finally, in regards to the U.S. EPA's concern regarding continuous sampling to the water table to ensure that potential historical releases have not migrated downward away from the structure, we have reviewed our files to determine typical depths to groundwater at wells located at various areas across the facility. Our research indicates that shallow unconfined groundwater is typically encountered at a depth less than approximately 10 feet below ground surface (generally around 5 feet). Therefore, the proposed boring termination depth of 10 feet bgs should be sufficient to reach the shallow groundwater.

Comment 6:

Section 9.0 refers to elevated PID readings used to chose a sample interval at those AOCs where VOCs have been identified as potential COCs. This is an acceptable approach; however, sampling of other suburface intervals should be taken as noted in Comment 5.

Response: As stated in Section 9.0 Sampling Approach, continuous sampling will be conducted at all sampling locations to determine if potential COCs are present in the soil at concentration levels that may be of concern. Therefore, all intervals will be sampled and evaluated for potential laboratory analysis. However, only one sample interval from each sampling location will be chosen for analysis. Based on the findings of the Assessment of AOCs, further investigation may be warranted.

Comment 7:

Referring to Table 2 on page 19, please provide rationale for using different methods for nitrate and nitrite analysis. Confirm that all methods are applicable for a soil matrix.

Response: The table provide on page 19 has been revised to show that the same analytical method (9056) is used for the analyses of nitrate and nitrite. In checking on this we discovered that the analytical method used for sulfate is also 9056. The USEPA analytical methods have been revised as follows:

BETX 5035/8260B Arsenic 6020 Phosphorus 6010
VOC 5035/8260B Lead 6020 Sulfate 9056
PAH 8270SIM Nickel 6020 Vanadium 6020
PCB 8082 Nitrate as N 9056
Ammonia 350.3 Nitrite as N 9056

I believe this addresses all of your comments. Please contact me, should you need any additional information.

Monte


0011607F.pdf


0011607i.pdf

Rec'd 5/20/03

3140 Finley Road
Downers Grove, IL 60515
630.795.3200
Fax 630.795.1130

Clayton GROUP SERVICES

FedEx Tracking No.: 7907 8465 2827

May 19, 2003

Mr. Peter R. Ramanauskas
U.S. ENVIRONMENTAL PROTECTION AGENCY
77 West Jackson Blvd. (DW-8J)
Chicago, IL 60604-3590

Clayton Project 15-00116.06-001

RE: Results from Re-Sampling MW01S and MW03S Area Investigation Report
ILD005078126
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Dear Peter:

Monitoring well MW01S was re-sampled and analyzed for the presence of the three (3) polynuclear aromatic hydrocarbons (PAHs) detected during the August 2001 sampling event. As you recall, our position has been that the PAHs detected in the August 2001 sample were the result of contamination of the sample from vapors emanating from the oiling of the county road and are not indicative of groundwater contamination. However, given that PAHs have been found in sediment samples collected from the wastewater treatment ponds and the outlet channel, the U.S. EPA requested the re-sampling of MW01S. The laboratory report, providing the results of this re-sampling, is enclosed. A review of the report shows that the three (3) PAHs were not detected in this groundwater sample. In fact, no PAHs were detected in this sample. Therefore, as presented in the October 31, 2001 Final Environmental Indicators (EI) Report, no PAHs have been detected in groundwater collected from the deeper sand aquifer.

We have completed a limited subsurface investigation in the area of monitoring well MW03S. A report presenting the results of the investigation is enclosed. The investigation centered on the presence of volatile organic compounds (VOCs) in groundwater at monitoring well MW03S and U.S. EPA's request for analysis in addition to that provided in the Corrective Measures Study. The source of this groundwater contamination was believed to be the six wastewater treatment ponds (WWTPs) located immediately east of MW03S. Four of the six ponds were closed between 1983 and 1986 while the remaining two are still active.

15-00116ca084\MMN

The investigation shows that the source of the groundwater contamination at MW03S is past releases from these former WWTPs. It further shows that these WWTPs are not a continuing source of contamination. The predictive modeling presented in the report reveals that the WWTPs and the detected VOCs in MW03S do not present a risk to the nearest human receptor location, the Freshwater Lake. Therefore, the closed WWTPs, which have a minimum of approximately four feet of clay cover, do not warrant any further investigation or corrective action. Furthermore, the current groundwater contamination detected in MW03S does not warrant any remedial action.

To confirm that the groundwater contaminant plume remains under control, we are proposing to install four (4) additional shallow groundwater-monitoring wells in the vicinity of monitoring well MW03S and the WWTPs. These new monitoring wells, along with existing monitoring wells MW03S and MW10, will be sampled on a quarterly basis for one year. The results of this sampling will be used to establish a long-term groundwater-monitoring program for this area. We are planning to be onsite within the next few weeks to install the additional monitoring wells and will contact you in advance of our mobilizing to the site.

Please contact me should you have any questions.

Sincerely,

Monte M. Nienkerk

Monte M. Nienkerk, P.G.
Senior Project Manager
Environmental Services

Enclosures: MW01S – Laboratory Report (2 copies)
MW03S Area Investigation Report (2 copies)

cc: John Rice, Millennium Petrochemicals, Inc.
Michael Bramnick, Millennium Petrochemicals, Inc.
Tom Dimond, Mayer, Brown, Rowe & Maw
Jason Pontnack, Equistar Chemicals, L.P.
David Guier, Lyondell Chemical Company
Jeff Turner, Illinois EPA – Champaign
Tuscola Public Library

15-00116ca084\MMN

Illinois EPA's Comments on "MW03S Area Investigation," dated May 15, 2003
Equistar Chemicals/Millenium Petrochemicals, Tuscola, Illinois (ILD005078126)

Illinois EPA has completed its review of a document entitled "MW03S Area Investigation" dated May 15, 2003, which was initially submitted to USEPA as part of a voluntary RCRA corrective action effort at the Equistar facility in Tuscola, Illinois (ILD005078126). While these efforts are being carried out under USEPA's oversight, Illinois EPA was asked to review this report because it contained an evaluation of soil and groundwater in the vicinity of MW03S using 35 Ill. Adm. Code 742 (Tiered Approach to Corrective-Action Objectives or "TACO").

In reviewing this report, Illinois EPA also reviewed the corresponding portions of a document entitled "Corrective Measures Study," dated January 31, 2002, as well as other documents previously submitted under the voluntary agreement to gain a better understanding of the overall issues addressed in the subject report. Among other things, this review found that MW03S is located downgradient of one of the solid waste management units of concern at this facility—the wastewater treatment ponds. Because of this, Illinois EPA reviewed the previous submittals to determine what had been completed to date relative to corrective action at these units.

The final results of Illinois EPA's review of the MW03S area investigation and the investigation/evaluation conducted at the wastewater treatment ponds (which is directly related to the MW03 area) are as follows:

1. A review of the information in the document entitled "MW03 Area Investigation" indicates the Wastewater Treatment Ponds 1, 4, and 6 were essentially closed as landfills between 1983 and 1986 as between four to six feet of wastewater treatment sludge appear to remain in the ponds. This would indicate that the ponds are subject to the requirements of 35 Ill. Adm. Code 800-817. As such, in accordance with 35 Ill. Adm. Code 742.105, the procedures set forth in 35 Ill. Adm. Code 742 cannot be used for these units. Thus, it was not appropriate for Millenium to use 35 Ill. Adm. Code 742 in evaluating the soil and groundwater contamination in the vicinity of these units. Because of this, Illinois EPA did not review the TACO evaluation contained in the subject submittal. It must be noted that this position regarding the use of TACO for these units was previously conveyed to USEPA via e-mails and telephone discussions last year.

TACO not applicable.
- Do they impact gw?
- How to close? Remove Sludge?

2. It appears as though four additional ponds were found at the facility during the MW03 area investigation (referred to as wastewater treatment ponds 1, 3, 4, 5 and 6 in the invesigation report) beyond those identified in figure 3 of the Enviromental Indicators Report. This numbering is somewhat confusing, as the active ponds in this area were initially identified as High Ponds 1 and 2 but in this report are essentially referred to as Ponds 2 and 3.

Send OK →

3. Page 11 of the Corrective Measures Study indicates that the wastewater treatment ponds are active and regulated by the Clean Water Act. This statement is not correct, as only the discharge from these ponds is regulated by the Clean Water Act.

4. No information has been provided regarding the amount of sludge present in High Ponds 2, 3, 7-20; Middle Ponds 1-6 and Low Ponds 7, 8. As a substantial amount of sludge is likely present in each of these ponds, it is not appropriate to evaluate the contaminant levels present in the sludge in each pond using TACO, as: (1) the ponds are essentially be being used as disposal impoundments; and (2) sludge is not soil and TACO is used to develop remediation objectives for soil, not sludge. Due to the fact that TACO is not applicable to the ponds, Illinois EPA did not conduct a review of the TACO evaluation conducted on the sludges within the ponds.

5. Several times throughout the various corrective action documents submitted on behalf on Millenium Petrochemicals by Clayton Group Services, statements are made about the limited exposure pathways associated with the ponds and that they are regulated by the Illinois EPA's Bureau of Water. This is not the case and thus there is no formal mechanism currently in place to: (1) limit exposure to the sludges present in these ponds; (2) ensure the ponds are properly closed after they are no longer in use; or (3) ensure the groundwater contamination in the vicinity of the ponds is adequately addressed and does not adversely impact human health and the environment. It would seem as though such a formal mechanism and procedures must be established and then implemented to ensure the requirements of Section 3008(h) are met at this facility.

6. The Illinois has determined it cannot approve the 35 Ill. Adm. Code 742, Tier 2 Evaluation for groundwater in the vicinity of the WWTPs and monitoring well MW03S. The Illinois EPA has determined that a 35 Ill. Adm. Code Part 742 risk assessment is not applicable to the site due to the following:

   a. 35 Ill. Adm. Code 742 soil migration to groundwater equations are for soil and groundwater, not sludges.

   b. The WWTP sludges constitute waste left in place. 35 Ill. Adm. Code Part 742 risk assessment cannot be applied to SWMUs with wastes left in place.

c. There is no engineered barrier in place at any of the WWTPs preventing the migration of contamination from the sludges to groundwater. Existing groundwater impacts demonstrate that soil in the vicinity of the wastewater treatment plant has not prevented contamination of the shallow aquifer regardless of its characterization as a "Type E" soil.

d. The WWTP sludges are clearly situated below the water table providing direct contact of contaminated waste with groundwater.

e. WWTPs 2 and 3 still actively accumulate waste. These units are unlined and thus provide a potential on-going source of groundwater contamination.

WWTP

Issues

1. Closure mechanism for existing active ponds. Close as per surface impoundment regs?
2. Since TACO is not applicable, reevaluate source control/removal of contaminated sludges in closed ponds.
3. Address GW contamination.

soil Background Samples? Under TACO 742.405
Make sure RLs are below TACO screening #'s.

Monte Nienkerk <MNienkerk@claytongrp.com>
05/06/03 05:24 PM

To: Peter Ramanauskas cc: Ken Comire, "Ron St. John", tdimond
Subject: Re: Comments on Assessment of Additional Areas of Concern

Peter,

You will find our reply to your comments in bold type following each of your comments. We are hoping to initiate the additional field work that is proposed for the additional areas within the next few weeks and will notify you prior to our mobilizing to the field. Please let me know if you have any additional questions or comments based on our reply. Thanks.

Monte Nienkerk
630/795-3207

>>> <Ramanauskas.Peter@epamail.epa.gov> 04/09/03 02:55PM >>>
Gentlemen,

I've looked through the March 28, 2003 Assessment of Addtional Areas of
Concern for the AOCs at the Tuscola Plant. Overall it looks pretty good.
I do have some comments I'd like you to address. They are listed below:

U.S. EPA Comments on Assessment of Additional Areas of Concern
Millennium Petrochemicals, Inc. - ILD 005 078 126
April 9, 2003

Comment 1:

Section 1.0, page 2 mentions an under-drain system at the chemical loading area. Was this under-drain system installed prior to demolition
of tanks in this area in the late 1980's? Would the under-drain system
have captured releases from former tanks?

Response: According to Equistar personnel, the under-drain system was installed in April 1992. It should be noted that only the caustic storage tank was demolished. The olefins tank and the benzene tank are still being used for the facilities less than 90 day hazardous waste storage. As stated in Section 1.0 Introduction/Background, the chemical loading area is an active area and therefore should not considered an AOC. If any past releases occurred in this area, it would be impossible to distinguish impacts to the soil from that of current Equistar operations in the chemical loading area.

check if these tanks were part of Part A application. If they were product tanks they were not regulated. <90 day storage IEPA regulates, Email Jeff

Comment 2:

Section 3.2, Investigation Approach for the Former Ethylene Production Area, states that soil samples will be collected from locations associated with underground structures. Sumps are not mentioned as part
of the sampling locations. How many sumps are estimated to be in this area? If possible to locate these sumps, additional samples should be biased towards those locations.

Response: A review of available facility drawings indicates that 30

sumps may have been present in the Former Ethylene Production Area. They appear to have been clustered in the central portion of the area (within 3 distinct areas of the central portion). All appear to have drained to manholes where sampling is already proposed. Never the less, we propose adding three new borings (one in each of the distinct areas identified as having sumps), assuming these areas (or sumps) can be located. A revised Figure 4 is attached showing the three additional boring locations.

OK

Comment 3:

Section 6.2, Investigation Approach for Former Agricultural Production Area, states soils samples will be collected from locations associated with storage areas and underground structures. Figure 6 shows numerous
former storage tank structures, but not all locations have sampling associated. Have former tank locations at this and all other AOCs been
evaluated for sampling based on materials formerly stored within?

OK

Response: As discussed in Section 6.0 Former Agricultural Chemical Production Area, the entire Area was shutdown in 1972. Therefore, no information was available to enable an evaluation of this Area in regards to the materials formerly stored within the tanks. However, Section 6.2 Investigation Approach presents the list of potential COCs within this Area, which was developed in consideration of the entire AOC. Therefore, the identified list of potential COCs should be more comprehensive than may actually be necessary at any particular tank location (or any other location within the AOC). The list of potential COCs at the other Areas was developed in the same manner. Thus, we believe this is a very conservative approach for not only the tanks within the Former Agricultural Chemical Production Area but for all tanks within the other AOCs.

Comment 4:

Section 7.2, Investigation Approach for Former Fire Training Grounds, mentions ditch sampling. Sampling locations are shown in Figure 7. Is
the ditch outside the borders of the Former Fire Training Grounds or does it run through the AOC? Can it be shown on Figure 7 with its associated sample locations? Where does this ditch run and what might be potential impacts to the receiving body? Sampling locations should account for potential contaminant migration down this ditch.

OK

Response: The ditch traverses the southern end of the Former Fire Training Grounds. Four of the depicted proposed sampling locations on Figure 7 are within the ditch and, therefore, should be representative of potential contaminant migration within the ditch. The ditch and the associated sample locations within the ditch are more clearly presented on the attached revised Figure 7. At one time, the ditch flowed to the wastewater treatment ponds. When the fire training area was closed, the drainage was blocked and no longer flows anywhere. The potential impacts to the receiving body (WWTPs) would be expected to be the same as those that may be present within the AOC. As you are aware, the WWTPs were included in the RCRA Facility Investigation.

Can some samples be biased to the areas where previous PCB soil confirmation was done? 1992

Comment 5:

Section 9.0 refers to the general sampling approach taken at the AOCs and states that typically only the top foot of soil will be collected

for analysis except in those areas where subsurface structures are known to exist. What about sampling depth at those areas such as the Former Polyethylene Production Area and the Former Polymer Pilot Plant where no drawings showing details of the area could be found but underground structures are assumed to exist? Soil samples at all AOCs should be taken at a subsurface interval associated with depth corresponding to the base of the structure of concern and other intervals continuously to the water table to ensure that potential historical releases have not migrated downward away from the structure.

Response: In order to be conservative, based on the absence of information that could identify the locations of any features (other than unidentified apparent outlines which may represent buildings or operational areas) within the Former Polyethylene Production Area (20 sample locations) and the Former Polymer Pilot Plant Area (9 sample locations), the density of the proposed sampling locations within these areas was increased as shown on Figures 5 and 8, respectively, of the submitted Assessment. In order to address the U.S. EPA's concerns in regards to these Areas, we propose to modify the general sampling approach for these Areas to incorporate continuous direct-push method sampling to a maximum depth of approximately 10 feet bgs for approximately 50% of the sampling locations within each area. The pattern of determining those borings to be completed to this depth will be based upon field observations at the time of drilling. We believe this will be a conservative approach for these Areas based on the absence of information.

OK

We understand the U.S. EPA's concerns that soil samples at all AOCs should be taken at a subsurface interval associated with a depth corresponding to the base of the structure of concern (if such a structure was/is present at the proposed sampling location). However, as stated in Section 9.0 Sampling Approach, based on the evaluation of the AOCs, six of the eight AOCs warrant investigation to determine if potential COCs are present in the soil at concentration levels that may be of concern. As a result, Our goal is to sample and analyze the interval that indicates the greatest potential for contamination at any location rather than limit sampling to the base of a structure of concern. Therefore, as stated in Section 9.0, continuous sampling will be conducted to the termination of all borings. The identification of the interval with the greatest potential for contamination will be based on PID readings, field observations or at a depth corresponding to the base of the structure of concern, as appropriate. This will result in the analysis of one sample interval from each borehole. Therefore, We believe our method of obtaining the sample with the greatest potential for contamination is a conservative approach that will meet the goals of determining if these AOCs contain concentration levels of COCs that may be of concern, regardless of depth.

* Any suspected metals concerns?

Finally, in regards to the U.S. EPA's concern regarding continuous sampling to the water table to ensure that potential historical releases have not migrated downward away from the structure, we have reviewed our files to determine typical depths to groundwater at wells located at various areas across the facility. Our research indicates that shallow unconfined groundwater is typically encountered at a depth less than approximately 10 feet below ground surface (generally around 5 feet). Therefore, the proposed boring termination depth of 10 feet bgs should be sufficient to reach the shallow groundwater.

OK

* Check VOC sampling → don't use top 6 inches? Encore samplers?

* Sample at base of structure and directly above WT and if PID is elevated.

Comment 6:

Section 9.0 refers to elevated PID readings used to chose a sample interval at those AOCs where VOCs have been identified as potential COCs. This is an acceptable approach; however, sampling of other suburface intervals should be taken as noted in Comment 5.

Response: As stated in Section 9.0 Sampling Approach, continuous sampling will be conducted at all sampling locations to determine if potential COCs are present in the soil at concentration levels that may be of concern. Therefore, all intervals will be sampled and evaluated for potential laboratory analysis. However, only one sample interval from each sampling location will be chosen for analysis. Based on the findings of the Assessment of AOCs, further investigation may be warranted.

Same w/5.

Comment 7:

Referring to Table 2 on page 19, please provide rationale for using different methods for nitrate and nitrite analysis. Confirm that all methods are applicable for a soil matrix.

Response: The table provide on page 19 has been revised to show that the same analytical method (9056) is used for the analyses of nitrate and nitrite. In checking on this we discovered that the analytical method used for sulfate is also 9056. The USEPA analytical methods have been revised as follows:

BETX	5035/8260B	Arsenic	6020	Phosphorus	6010
VOC	5035/8260B	Lead	6020	Sulfate	9056
PAH	8270SIM	Nickel	6020	Vanadium	6020
PCB	8082	Nitrate as N	9056		
Ammonia	350.3	Nitrite as N	9056		

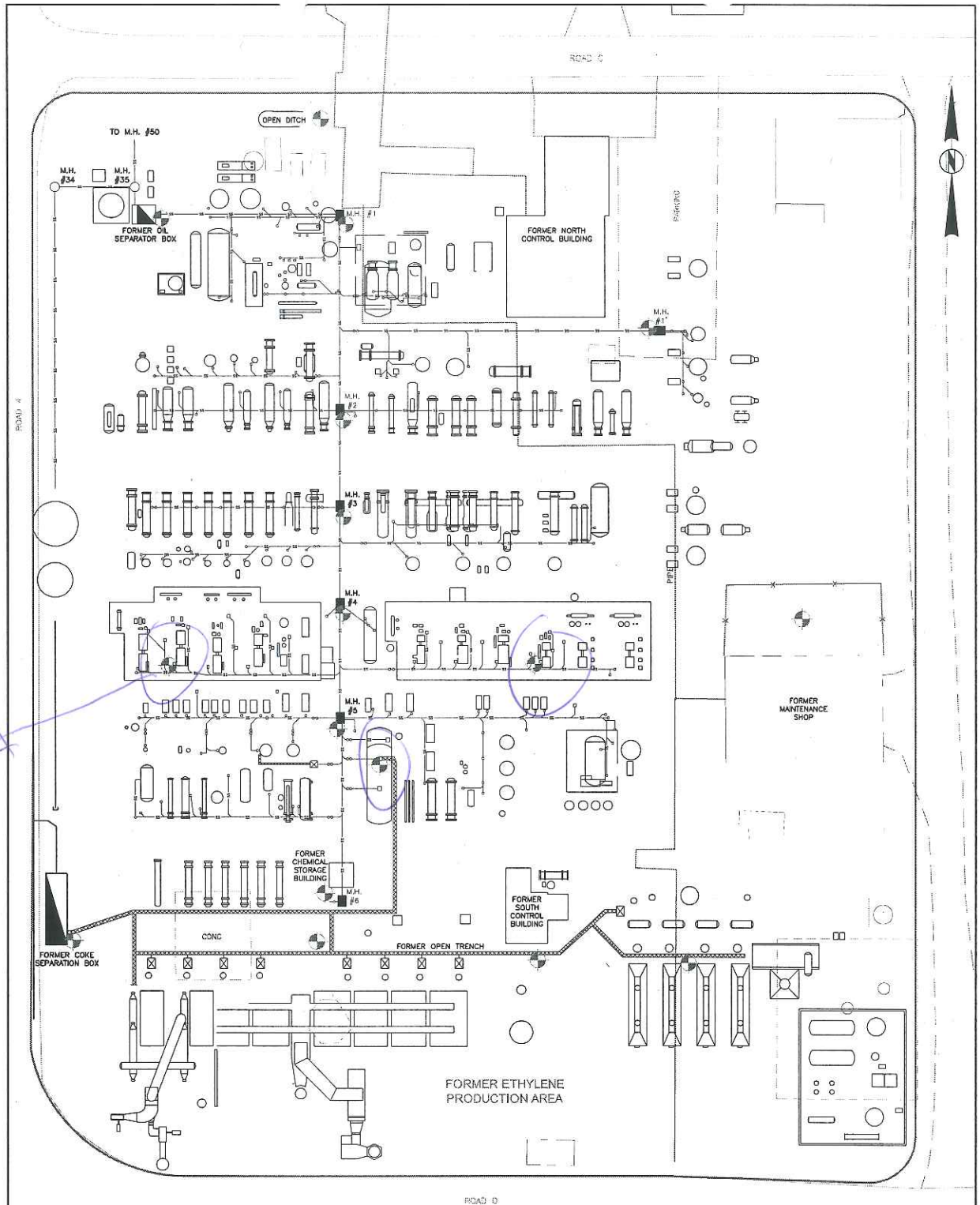
I believe this addresses all of your comments. Please contact me, should you need any additional information.

Send replacement pages.

Monte


0011607F.pdf 0011607i.pdf

← Check for revised table 2?



3 new samples 4

LEGEND

- PROPOSED SAMPLE LOCATION
- SANITARY SEWER LINE
- BLOW-DOWN PIT
- MANHOLE
- INLET
- U-SEAL
- SUMP
- OPEN TRENCH

NOTES:
DARK LINE INFORMATION REGARDING STRUCTURES, EQUIPMENT, AND UNDERGROUND PIPING IS FROM FACILITY DRAWING NUMBER E-3G-8247.

GRAY LINE INFORMATION IS FROM AERIAL PHOTOGRAPH FLOWN NOVEMBER 2000

SCALE IN FEET
0 25 50 100

CHECK BY	MMN
DRAWN BY	OS
DATE	1-11-03
SCALE	AS SHOWN
CAD NO.	0011607F
PRJ NO.	15-00116.07

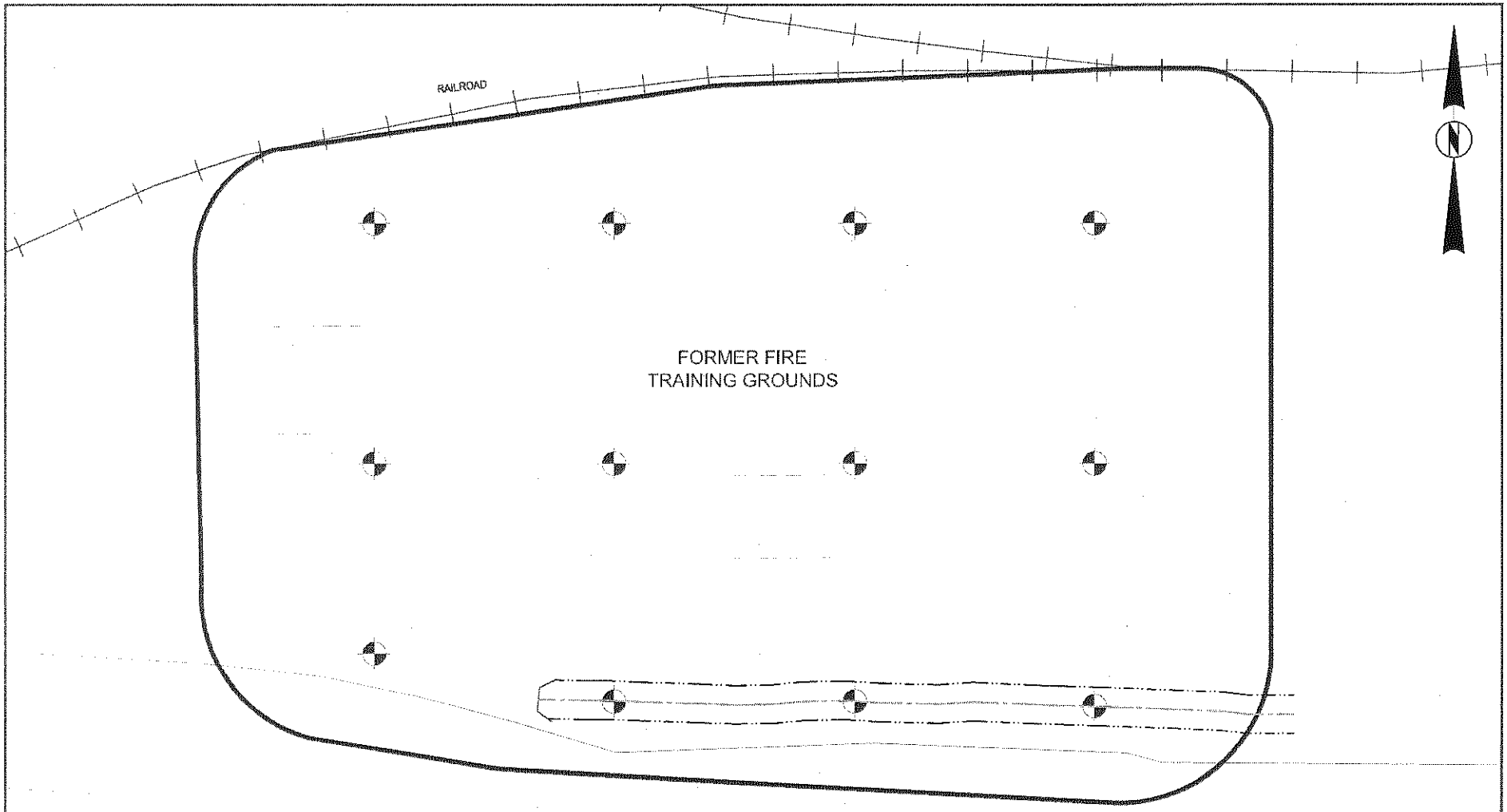
REVISED: 5-6-03

PROPOSED SAMPLE LOCATIONS
FORMER ETHYLENE PRODUCTION AREA

MILLENNIUM PETROCHEMICALS, INC.
TUSCOLA, ILLINOIS

Clayton GROUP SERVICES

FIGURE 4



LEGEND

PROPOSED SAMPLE LOCATION

NOTE: GRAY LINE INFORMATION IS FROM AERIAL PHOTOGRAPH FLOWN NOVEMBER 2000

CHK BY	MMN
DWN BY	OS
DATE	1-11-03
SCALE	AS SHOWN
CAD NO.	0011607i
PRJ NO.	15-00116.07

PROPOSED SAMPLE LOCATIONS
FORMER FIRE TRAINING GROUNDS

MILLENNIUM PETROCHEMICALS, INC.
TUSCOLA, ILLINOIS

REVISED: 5-6-03

Clayton GROUP SERVICES

FIGURE
7

Rec'd 4/1/03

3140 Finley Road
Downers Grove, IL 60515
630.795.3200
Fax 630.795.1130

Clayton GROUP SERVICES

Via Federal Express No.7902 4471 9801

March 28, 2003

Mr. Peter R. Ramanauskas
U.S. ENVIRONMENTAL PROTECTION AGENCY
77 West Jackson Boulevard (DW-8J)
Chicago, Illinois 60604-3590

Clayton Project 15-00116.07

RE: Assessment of Additional Areas of Concern
ILD005078126
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Dear Peter:

Clayton Group Services, Inc. (Clayton), on behalf of Millennium Petrochemicals, Inc. (Millennium), is hereby submitting the Assessment of Additional Areas of Concern that has been completed for the Tuscola, Illinois facility.

As you will see in the report, we are planning to collect soil samples from some of the additional areas. We are planning to conduct this sampling sometime during the month of May. Once we have scheduled the specific dates that we will be on site to collect the samples, we will notify you. In the mean time, should you have any questions or comments concerning the report, please contact me at 630/795-3208 or Monte Nienkerk at 630/795-3207.

Sincerely,

Ronald B. St. John, P.G.
Vice President, Midwest Regional Director
Environmental Services

Enclosure: Assessment of Additional Areas of Concern (2 copies)

cc: Michael Bramnick, Millennium Petrochemicals, Inc. (1 copy)
John Rice, Millennium Petrochemicals, Inc. (1 copy)
Tom Dimond, Mayer, Brown Rowe & Maw (1 copy)
Jason Pontnack, Equistar (2 copies)
Jeff Turner, Illinois EPA – Champaign (1 copy)
Tuscola Public Library (1 copy)

15-00116ca082\MMN

Peter Ramanauskas
11/08/02 01:59 PM

To: Douglas Yeskis/R5/USEPA/US
cc:
Subject: VOC sampling

Hi Doug,

I got your name from Monte Nienkirk at Clayton Group Services. I'm working with him on a RCRA Corrective Action project at a site in Illinois. They will be driving some soil borings with a Geoprobe to look for VOCs and have proposed to take groundwater samples from the borings and analyze for VOCs to see if there is a plume present. They will install a 1 inch PVC pipe in the boring and use a peristaltic pump to take a water sample.

I told Monte that they need to be sure to use a sampling method that will not drive off VOCs in the sample. He mentioned that he used this technique on a Superfund site you were involved with in Belvedere, IL.

I just wanted to check with you and get your feedback on this.

Thanks in advance for your help!
Peter

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Fax 630.795.1130

Clayton GROUP SERVICES

CERTIFIED MAIL 7001 2510 0008 2984 1178
and Transmission by Fax: 312/353-4788

October 30, 2002

Mr. Peter R. Ramanauskas
U.S. ENVIRONMENTAL PROTECTION AGENCY
77 West Jackson Blvd. (DW-8J)
Chicago, IL 60604-3590

Clayton Project 15-00116.06-001

RE: Notice of Planned Field Activities
ILD005078126
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Dear Peter:

In our October 22, 2002 reply to your July 3, 2002 discussion document, Millennium Petrochemicals, Inc. (Millennium) agreed to resample monitoring well MW01S and to conduct a soil investigation in the area of MW03S. This is to notify you that these activities will be conduct the week of November 11, 2002 during the sampling of the landfill compliance monitoring wells.

Please contact me should you have any questions.

Sincerely,

Monte M. Nienkerk

Monte M. Nienkerk, P.G.
Senior Project Manager
Environmental Services

cc: John Rice, Millennium Petrochemicals, Inc.
Michael Bramnick, Millennium Petrochemicals, Inc.
Tom Dimond, Mayer, Brown, Rowe & Maw
Jim Gooris, Equistar Chemicals, L.P.
Jeff Turner, Illinois EPA – Champaign

15-00116ca081\MMN

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Clayton GROUP SERVICES

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and Transmission by Fax: 312/353-4788

October 22, 2002

Mr. Peter R. Ramanauskas
U.S. ENVIRONMENTAL PROTECTION AGENCY
77 West Jackson Blvd. (DW-8J)
Chicago, IL 60604-3590

Clayton Project 15-00116.05-006

RE: Reply to U.S. EPA Discussion Comments dated 07/03/2002
ILD005078126
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Dear Peter:

The purpose of this letter is to respond, on behalf of Millennium Petrochemicals, Inc. (Millennium), to the United States Environmental Protection Agency's (U.S. EPA) discussion document presented to Clayton Group Services, Inc. (Clayton) after our July 3, 2002 meeting in Chicago; and as discussed further during the August 15, 2002 site visit in Tuscola, Illinois. Before proceeding, I would like to inform you (if you are not already aware) that Chris Bland is no longer the Health, Safety, and Environmental (HS&E) Manager at the Equistar Chemicals L. P. (Equistar) Tuscola, Illinois facility. He has taken on new production responsibilities at the facility. The new Equistar HS&E manager is Jim Gooris. His telephone number is 217/253-1291.

The U.S. EPA July 3, 2002 document concerns the January 31, 2002 Corrective Measures Study (CMS) and is divided into: Existing Study Areas (Item #1) addressed in the CMS, Newly Identified Areas (Item #2) not discussed in the CMS, and Other General Comments with respect to the CMS. Given that the two (2) items listed under Other General Comments relate to the CMS, as do the items concerning the Existing Study Areas, these two (2) items will be incorporated in the response concerning the Existing

Study Areas. We have provided responses in the general order presented in your July 3, 2002 memo.

ITEM #1 – EXISTING STUDY AREAS

Snake River. U.S. EPA agrees that no further action is required here, as this area was clean closed.

Response. None required.

Landfills – Groundwater Plume. U.S. EPA agrees that corrective action can be deferred to the Illinois Environmental Protection Agency's (Illinois EPA) solid waste program provided Millennium and the Illinois EPA can reach agreement on appropriate corrective action and the establishment of a groundwater management zone (GMZ).

Response. A groundwater impact assessment report was submitted to the Illinois EPA on July 29, 2002 (a copy was also provided to the U.S. EPA). The report proposes monitored natural attenuation as an appropriate corrective action and also proposes the establishment of a GMZ. It is expected that it will take several months before this issue is resolved.

-I have to look at Gmz 2 for 750

WWTP Sludges. U.S. EPA agrees that cleanup can be deferred to closure of the Waste Water Treatment Ponds (WWTP), as long as there are no impacts from the ponds to the environment. At present, there may be impacts to MW03S and possibly MW01S. The Illinois EPA Bureau of Water and U.S. EPA will need to coordinate to ensure there is a mechanism in place, which will require proper closure of the WWTPs.

Response. For the reasons discussed in detail below, we believe that no releases from the WWTPs have adversely impacted groundwater at monitoring well MW01S. Even so, we are planning to sample this well in Fall 2002 to demonstrate that it is not being impacted. Further, as discussed below, we believe that any past releases from the WWTPs that may be impacting MW03S do not present a risk to the environment given that the information provided in the January 31, 2002 Corrective Measures Study demonstrates that contaminants found in MW03S should not impact any receptors. Finally, we believe that the Illinois EPA Bureau of Water does have the necessary mechanism in place to ensure appropriate cleanup, if necessary, at the time the WWTPs are closed. We can assist the U.S. EPA in discussions with the Illinois EPA Bureau of Water on this matter.

WWTP Groundwater. A number of issues are raised under this topic. These include:

- Three (3) semi-volatile organic compounds (SVOCs) found in monitoring well MW01S during the August 2001 sampling event. These constituents are also found in WWTP sludge and the outlet channel.

Response. As discussed on page 4-16 of the October 31, 2001 Final Environmental Indicators (EI) Report, no SVOCs were detected in samples collected from this monitoring well during December 2000 or March 2001. Furthermore, no SVOCs have been detected in any of the monitoring wells screened in the deeper sand aquifer during any of the sampling events. The three (3) SVOCs detected in August 2001 are polynuclear aromatic hydrocarbons (PAHs), which are constituents of asphalt, tar, and road oil. On the day this sample was collected, the air temperature was in the high 90 degree Fahrenheit range and the sampling team noted that the county road adjacent to MW01S had recently been oiled and there was a distinct oil / road tar odor in the air. Given this, the three (3) PAHs found in the August 2001 sample from MW01S are attributed to contamination of the sample from vapors emanating from the county road and are not indicative of groundwater contamination. However to address the U.S. EPA's concerns, MW01S will be sampled and analyzed for the presence of PAHs. The well will be sampled in the same manner as the previous three (3) sampling events. We will schedule the sampling of MW01S to take place while the sampling of the landfill compliance monitoring wells is occurring this fall.

- Chloroform has been detected in multiple wells. Millennium states this is cross-contamination from fire fighting system water. What is the source of this water?

Response. The source of the fire fighting system water is the Freshwater Lake. As water is pumped from the lake to the facility distribution system it is treated with chlorine. Chlorine and other disinfectants used to control microbial contaminants in drinking water can react with naturally occurring organic and inorganic mater to form chloroform.

- Volatile organic compounds have been found at MW03S above Class II groundwater standards, while sulfate and manganese are above screening levels. The U.S. EPA does not agree that no remediation is necessary. The source has not been identified. Millennium has not demonstrated that the plume is bounded and not migrating per CA750 requirements.

Response. We do not agree with or entirely understand your concerns. As indicated in the Final EI Report, we believe that the source of the contamination found in MW03S is the series of six (6) WWTPs located about 100 feet east of MW03S and immediately north of the wastewater treatment plant. As discussed on page 3-1 of the Final EI Report,

four of the six (6) ponds were closed between 1983 and 1986. According to plant personnel present during the closure of these ponds, they were dewatered and dredged prior to closure and backfilled with native soil material obtained from the plant grounds. Furthermore, the two (2) remaining ponds are periodically dredged in order to maintain their capacity with the most recent dredging having been conducted in the Fall of 2000. Therefore, we consider the source of the contamination found in MW03S to have been removed. Given the removal of the source over 15 years ago, the ability to better identify the source based on current day sampling is problematic. However, to attempt to address your concern, a series of soil borings and soil sampling will be conducted in the area upgradient of MW03S (primarily in the area of the closed WWTPs). The enclosed figure shows the tentative locations for the soil borings (pending clearance of utilities or other obstructions to being able to complete a soil boring). These soil borings will be continuously sampled, using the direct push technique, to the water table. The soil from each boring location will be field screened with a photoionization detector (PID). If field screening or other signs (i.e. visual or odor) indicates the presence of contaminants, soil samples will be submitted for laboratory analyses (method 5035 – 8260A). The sample representing the interval with the highest PID reading will be submitted. A second sample from the location (collected at a deeper depth) may also be submitted for analyses. If this approach is agreeable, we can initiate the work within the next few weeks. We will notify you once we have a specific start date.

Is there a positive link via data?

good

Good
ask Allen about PID sensitivity for screening, may be OK.

We, similarly, do not understand your concern regarding the bounding and migration of the plume. As stated in the Final EI Report, no volatile organic compounds (VOCs) were detected in MW10 located approximately 200 feet southwest (downgradient) of MW03S and 200 feet north of the facility border. Furthermore, the CMS presented a risk analysis demonstrating that the levels of contaminants observed at MW03S would not cause an exceedance of groundwater or surface water standards at the nearest receptor point, the Freshwater Lake only about 110 feet west of MW03S. Migration of the plume (if any) should not be an issue if the risk analysis shows that there is no unacceptable risk at the nearest receptor and that receptor is onsite. Water elevations of the Freshwater Lake, MW03S, and MW10 have been determined six (6) times since the installation of MW10 in July 2001. With the exception of one (1) event, the groundwater elevation at MW10 has always been lower than the elevation at MW03S. During the October 2001 event, the groundwater elevations were basically the same at both locations (MW03S = 665.51 and MW10 = 665.61). Therefore, MW10 is clearly downgradiant of MW03S. Furthermore, the elevation of the lake has been higher than the groundwater elevations at MW03S and MW10 during most of these events. The plume identified at MW03S is bounded by MW10. Continued monitoring of the groundwater elevations and periodic sampling and analyses of MW03S and MW10 should be sufficient to determine if the migration of contaminated groundwater has stabilized.

Cannot meet definition of CA750 this way.

Can't bound w/ one well.

- Other detected constituents in the WWTP wells above screening levels include metals/inorganics such as manganese, lead, and nickel. Of these, manganese and sulfate are the most prevalent. The CMS does not discuss manganese, even though manganese was detected above Class I levels in 9 of 13 wells during one or more sampling events. Has a statistical background been set for these metals under the Illinois EPA GMZ work?

Response. The CMS discussion concerning the evaluation of metals/inorganics in groundwater in the area of the WWTPs (page 21 of the CMS) is focused on the shallow groundwater. This is the groundwater found in the upper glacial till versus groundwater found in the deeper interglacial unit or in the deeper yet sand aquifer. Shallow groundwater is classified as Class II groundwater. Therefore, as stated in the CMS, the only potential inorganic constituents of concern in the shallow groundwater in the area of the WWTPs are iron, sulfate, and chloride. The screening levels for these constituents and also for manganese are not health-based standards. Rather, the standards were set based on secondary contact concerns associated with aesthetic criteria (e.g. odor, taste, color, and staining of laundry and plumbing fixtures). This is consistent with documents published by research groups recognizing that manganese is a commonly found element that is essential for normal physiologic functioning in all animal species and establishing safe daily dietary intake levels for manganese. (*See* U.S. EPA's Integrated Risk Information System and the World Health Organization).

Manganese, as noted on page 4-19 of the Final EI Report, was detected above its Class I groundwater screening level in nine (9) of the thirteen (13) RFI monitoring wells screening Class I groundwater, including a background well located approximately 7,000 feet east and upgradient of the WWTPs (MW08D). The nine (9) wells where manganese was detected above its Class I groundwater screening level are MW01S, MW03D, MW04D, MW05D, MW06S, MW07S, MW07D, MW08D, and MW11 (also a deep well). Of these, it was only detected above its screening level during one (1) of the three (3) sampling events in five (5) of the monitoring wells (MW03D, MW04D, MW05D, MW07D, and MW08D). In addition, monitoring well MW11 (not installed until July 2001) has only been sampled once and is located near the east boundary of the site, upgradient of the WWTPs.

Although manganese has been detected above its Class I groundwater screening level during two (2) out of three (3) sampling events in MW01S and all three (3) sampling events in MW06S and MW07S, these wells are screened in the interglacial unit, which is not used as a potable source of drinking water. Furthermore, given that the screening level for manganese in Class I groundwater (0.15 mg/L) was established for aesthetic reasons, not to protect human health, exceedances of these standards (especially the small

exceedances shown in the sampling data) do not present a risk to human health or the environment. Accordingly, the occurrence of manganese only warrants further monitoring of the existing monitoring wells as proposed in the CMS.

Lead was only detected above its screening level in two monitoring wells (MW04D and MW06S) during only one (1) of the three (3) sampling events for each well. For both wells, lead was not detected in the field filtered sample collected at the same time (an indication that the lead detection is due to sediment in the sample and not the groundwater itself) and was not detected during the other two (2) sampling events in either filtered or unfiltered samples. Given that lead has not been detected above its screening level during any other sampling event or at any other monitoring well locations, we do not consider lead to be a contaminant of concern with respect to the groundwater.

Nickel, while never detected above its screening level in field filtered samples, was detected above its screening level in unfiltered samples collected from one monitoring well (MW06S). It was only detected during two (2) of the sampling events. As with lead, this is an indication that the nickel detection is due to sediment in the sample and not the groundwater itself. Given that nickel has not been detected at any other location above its screening value and given the fact that it was only found above its screening level in unfiltered samples, we do not consider nickel to be a contaminant of concern with respect to the groundwater.

The Illinois EPA approved statistical background values were provided to the U.S. EPA on August 19, 2002. The approved background values for the inorganics discussed above are as follows:

Approved Statistical Background Values

Analyte	Sand Aquifer Class I	Shallow Groundwater Class II
Lead	5 ug/L	5 ug/L
Manganese	130.64 ug/L	40 ug/L
Nickel	44.94 ug/L	10.32 ug/L
Sulfate	16.95 mg/L	109.40 mg/L

The background values established for the sand aquifer cannot be compared against results from monitoring wells screened in the interglacial unit Class I groundwater such as MW01S, MW06S, and MW07S. The statistical background values for the sand Class I aquifer were developed using data from monitoring wells MW08D and MW09D.

Monitoring wells MW01S, MW06S, and MW07S are screened in the interglacial layer not the deeper sand aquifer.

Offsite Drainage. Most likely No Further Action (NFA), if eco concerns are minimal. Arsenic exceeds human health at one location, but seems to be within background. U.S. EPA will determine if any additional work is required with respect to human health risk.

Response. We believe the NFA is appropriate for the Offsite Drainage. As noted in the CMS, the one location (SS01) where arsenic was detected at a concentration (14 mg/kg) slightly above the screening level (11.3 mg/kg) is within the secured facility that strictly controls access. Therefore, public contact with this area is prohibited. Furthermore, the concentration is significantly lower than the most stringent concentration for construction workers (61 mg/kg) presented in 35 Illinois Administrative Code 742 TACO. Finally, and as also noted in the CMS, drainage from this area can only leave the facility grounds during periods of extremely high rainfall. Typically stormwater drainage from this area is treated at the facility wastewater treatment plant.

Kaskaskia River Sediments. River sediments exceed ecological screening numbers. The U.S. EPA's ecologist will check the eco risk evaluation on the river sediments. The WWTP appears to be contributing to elevated levels of chromium and possibly arsenic. This should be investigated.

Response. We believe that the ecological risk evaluation demonstrates that there is no need for any further investigation concerning this issue. As you have noted, the U.S. EPA's ecologist is still reviewing the ecological risk evaluation of the Kaskaskia River sediments completed by Millennium and submitted to the U.S. EPA on February 18, 2002. The bioassay study that was conducted for this evaluation included both PAHs and metals (including chromium and arsenic).

Other General Comments Concerning the CMS

- The U.S. EPA indicates that since the total PCBs found in sample SL15HA (1070 ppb) exceeds the screening value (1000 ppb), PCBs should be considered as a potential contaminant of concern.

Response. We respectfully disagree based on the following discussion. The total PCBs found in sample SL15HA barely exceed the screening level. A review of all the sample results from the wastewater treatment pond sludges shows that PCBs are not of concern.

As noted in the CMS, PCBs were detected in only two (2) of the forty-eight (48) sludge samples collected from the wastewater treatment ponds.

A commonly accepted practice for evaluating analytical data from potential source media is to average the sample results. As noted above, PCBs were only detected in two (2) of the samples (both collected from the high ponds). Therefore, we have only averaged the results from those samples collected from the high ponds. In calculating the average, we used the laboratory reporting limit for those results where PCBs were not detected. This is a very conservative approach given that the laboratory would have reported (but did not report) any estimated values if PCBs were detected at concentrations below the laboratory reporting level. On this basis, the average PCB concentration for the high ponds is 696 ug/kg, well below the screening level of 1,000 ug/kg. The enclosed Table 1 shows the calculation for determining the average total PCB concentration. If we only averaged the two (2) samples collected from high pond 15 (the only pond where PCBs were detected above the screening level) the average (SL15HA total PCBs = 1070 ppb and SL15HB PCBs not detected, total reporting limit = 660 ppb) equals 865 ppb, still well below the screening level. Finally, if we only averaged the two samples where PCBs were detected (SL15HA total PCBs = 1070 ppb and SL18HB Aroclor 1254 = 460 ppb + reporting limit for Aroclor 1260 = 330 ppb), the average (930 ppb) is still below the screening level. Therefore, we believe that our original position is correct that PCBs are not of concern.

- Table 5E notes that the pH of the high pond ranged from 5.9 to 11.7, but table 6 shows pH range to be 6.5 to 8.0. Clarify.

Response. Table 5E of the CMS presents laboratory determined pH values of the high pond sludge. Table 6 of the CMS presents field determined pH values. Summary tables of the laboratory results are presented in Appendix H of the October 31, 2001 Final Environmental Indicators (EI) Report. Field conditions and instrumentation differences account for the differences in the pH values.

ITEM #2 – NEWLY IDENTIFIED AREAS

Former Process and Production Areas / Tanks. These are areas 1 through 8 identified in Equistar's April 8, 2002 letter to U.S. EPA. As these areas are now abandoned and it is unknown what chemicals may remain in the sumps / abandoned piping etc., these areas may now be considered Solid Waste Management Units (SWMUs). Was the API Sump sludge considered K051 (API Separator Sludge) waste? The U.S. EPA believes that these areas should be investigated by continuous soil sampling to the water table.

Response. We believe that two (2) of the identified areas (the former ethyl chloride production area and the chemical loading area) are not SWMUs given that these areas are not abandoned and are within active areas of the facility. As stated in the U.S. EPA's RCRA Facility Investigation (RFI) Guidance (page 1-3) … "A SWMU does not include an accidental spill from production areas and units in which wastes have not been managed (e.g., product storage areas)". Ethyl chloride production was discontinued in 1966; however, other production activities are continuing in this area. There was a 50% caustic storage tank decommissioned in the chemical loading area in the late 1980's; however, this area is still being utilized for chemical loading and storage. These areas have not been abandoned and therefore do not meet the definition of a SWMU. — correct. — May be OK.

Based on the above, we believe that only six (6) of the identified areas may meet the U.S. EPA's definition of a SWMU. These six areas are:

- the former extraction and fractionation process area,
- the former ethylene production area,
- the former polyethylene production area,
- the former agricultural chemical production area,
- the former fire training grounds, and
- the former polymer pilot plant area.

We are in the process of gathering background/historical information on these six (6) areas. Through this process, we are attempting to determine what materials may have been handled in these areas that could potentially have been released onto the ground leaving residual contamination. We are also trying to locate or create an overall facility drawing showing the location of these areas along with any drawings of these individual areas showing any material handling/storage areas, underground piping, sumps, or other collection areas. Once this information has been gathered, a brief report will be prepared presenting the information along with recommendations for any further soil investigations, if deemed necessary. We expect to submit this report to the U.S. EPA within the next ninety (90) days.

The API Sump sludge is not considered as K051 waste. K051 waste is hazardous wastes from a specific source (API separator sludge from the petroleum refining industry). This facility is not, nor has it ever been, a petroleum refining facility. OK

We believe this letter addresses the comments/questions raised in your e-mail dated July 3, 2002. Should you need further clarification or have any additional questions, please contact me.

Sincerely,

Monte M. Nienkerk

Monte M. Nienkerk, P.G.
Senior Project Manager
Environmental Services

Enclosures: Figure 1 – Proposed Soil Boring Locations
Table 1 – Average PCB Calculation

cc: John Rice, Millennium Petrochemicals, Inc.
Michael Bramnick, Millennium Petrochemicals, Inc.
Tom Dimond, Mayer, Brown, Rowe & Maw
Jim Gooris, Equistar Chemicals, L.P.
Jeff Turner, Illinois EPA – Champaign

15-00116ca080\MMN

LEGEND

- MONITORING WELL
- PROPOSED SOIL BORING

SCALE IN FEET

0 50 100 200

CHK BY	MMN
DWN BY	OS
DATE	9-11-02
SCALE	AS SHOWN
CAD NO.	0011603
PRJ NO.	15-00116

PROPOSED SOIL BORING LOCATIONS

EQUISTAR CHEMICALS, INC. / MILLENNIUM PETROCHEMICALS, INC.
TUSCOLA, ILLINOIS

Clayton GROUP SERVICES

FIGURE 1

TABLE 1
Wastewater Treatment Pond Sludge - High Ponds
Average PCB Calculation

ILD 005078126 -- Douglas County -- 041808002
Millennium Petrochemicals, Inc. / Tuscola, Illinois

SAMPLE LOCATION	TOTAL PCBs (ug/kg - ppb)
SL01HA	660 *
SL01HB	660 *
SL02HA	660 *
SL02HB	660 *
SL07HA	660 *
SL07HA DUP	660 *
SL07HB	660 *
SL08HA	660 *
SL08HB	660 *
SL09HA	660 *
SL09HA DUP	660 *
SL09HB	660 *
SL10HA	660 *
SL10HA DUP	660 *
SL10HB	660 *
SL11HA	660 *
SL11HB	660 *
SL11HB DUP	660 *
SL12HA	660 *
SL12HA DUP	660 *
SL12HB	660 *
SL13HA	1,240 *
SL13HB	196 *
SL14HA	920 *
SL14HB	1,100 *
SL15HA	1,070
SL15HB	660 *
SL16HA	660 *
SL16HB	660 *
SL17HA	660 *
SL17HA DUP	660 *
SL17HB	660 *
SL18HA	660 *
SL18HB	790
SL19HA	660 *
SL19HB	660 *
SL20HA	660 *
SL20HB	660 *
Average	**696**

NOTES:
* PCBs were not detected in the sample. The laboratory reporting limit was used in calculating the average.

Peter Ramanauskas

10/17/02 03:34 PM

To: mnienkerk@claytongrp.com
cc:
Subject: Equistar Quarterly Report

Hi Monte,

I received the 3rd Quarter 2002 progress report, thank you. I have a couple of questions after reading through it.

1) Can you please refresh my memory on the CMS addendum? I can't seem to find this document.

2) I am awaiting a formal submission of the response to my July 3, 2002 discussion points which would include agreements reached during our August 15th on-site meeting.

Thanks!

File

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

October 12, 2000 DW-8J

Mr. Ron St. John
Vice-President - Midwest Regional Director
Clayton Group Services
3140 Finley Road
Downers Grove, IL 60515

Re: 1988 RCRA Facility Assessment
Equistar Chemicals Facility
ILD 005 078 126

Dear Mr. St. John:

On October 11, 2000 we conducted a meeting at the U.S. Environmental Protection Agency's Regional Office to discuss the Voluntary Corrective Action activities to be undertaken at the Equistar Chemicals facility in Tuscola, Illinois.

In follow up to that meeting I am enclosing a copy of the RCRA Facility Assessment Final Summary and Recommendations dated October 1988. This document identifies Solid Waste Management Units (SWMUs) of concern from that period and should be used to help focus our current investigative activities. Please note that in addition to the various landfills identified (and since closed and capped under Illinois EPA oversight) other identified SWMUs include the wastewater treatment plant lagoons, off-site drainage ways, and pit 11. These units should be included in the current investigation.

To ensure that we are investigating all areas of potential concern as discussed at our meeting, I recommend that you obtain additional site information through a document search at the facility and through a Freedom of Information Act (FOIA) request to both the U.S. EPA as well as the Illinois EPA prior to finalizing the RFI workplan and beginning field data collection activities.

If you have any questions regarding this matter, please contact me at (312) 886-7890.

Sincerely,

Peter Ramanauskas
Environmental Engineer
WMB, Corrective Action Section

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Enclosure

cc: Jeff Turner, IEPA (w/o encl)
Hak Cho, USEPA (w/o encl)
Robert Thompson, USEPA (w/o encl)